T.C.
SAKARYA ÜNİVERSİTESİ
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HİDROJEN BENZERİ Pa, U VE Np İÇİN ATOMİK YAPI HESAPLAMALARI

YÜKSEK LİSANS TEZİ

Ufuk BOSTANCI

Enstitü Anabilim Dalı : **FİZİK**

Tez Danışmanı : **Dr. Öğr. Üyesi Güldem ÜRER**

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BEYAN

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İÇİNDEKİLER

SİMGELER VE KISALTMALAR LİSTESİ

CI	: Konfigürasyon Etkileşimi (Configuration Interaction)
CSF	: Konfigürasyon Hal Fonksiyonu (Configuration State Function)
MCHF	: Çok Konfigürasyonlu Hartree-Fock (Multiconfiguration Hartree-Fock)
NIST	: National Institute of Standards and Technology's Web Site
SCF	: Öz Uyumlu Alan (Self Consistent Field)

ŞEKİLLER LİSTESİ

TABLOLAR LİSTESİ

ÖZET

Anahtar kelimeler: MCHF yöntemi, seviye enerjileri, dalga boyları, ağırlıklı salınıcı şiddetleri, geçiş olasılıkları,

Bu çalışmada, hidrojen benzeri protaktinyum (Pa^{90+}, Z= 91), uranyum (U^{91+}, Z=92) ve neptünyumun (Np^{92+}, Z=93) seviye enerjileri, elektrik dipol (E1), elektirik kuadrupol (E2), manyetik dipol (M1) ve manyetik kuadrupol (M2), geçişlerinin bazı parametreleri (dalga boyları, ağırlıklı salınıcı şiddetleri ve geçiş olasılıkları) çok konfigürasyonlu Hartree-Fock yöntemi ile incelendi.

Ulaşılabilir kaynaklarda hidrojen benzeri aktinit atomlarıyla ilgili çok az sayıda çalışma vardır. Bu çalışmaların özeti birinci bölümde verilmiştir, ikinci bölümde bu çalışma çerçevesinde yapılan hesaplamalarda kullanılan çok konfigürasyonlu Hartree-Fock (multiconfiguration Hartree-Fock, MCHF) yöntemi kısaca açıklanmış, elde edilen sonuçlar üçüncü bölümde yorumlanarak sunulmuştur.

ATOMIC STRUCTURE CALCULATIONS FOR HYDROGEN LIKE Pa, U AND Np

SUMMARY

Keywords: MCHF method, energy levels, wavelengths, weighted oscillator strengths, transitions probabilities,

In this study, the energy levels and wavelengths, weighted oscillator strengths and transition probabilities of electric dipole (E1), electric quadrupole (E2), magnetic dipole (M1), and magnetic quadrupole (M2) for hydrogen like protactinium (Pa^{90+}, Z= 91), uranium (U^{91+}, Z=92) and neptunium (Np^{92+}, Z=93) have been investigated using multi-configuration Hartree-Fock method (MCHF).

There is so sparse study about hydrogen like actinides in the available literature. A sum of these works has been given in the first chapter, then multi-configuration Hartree-Fock method has outlined and the calculated results has been presented and interpreted in the following chapters, respectively.

BÖLÜM 1. GİRİŞ

Aktinitler grubu (aktinyum (Ac, Z=89), toryum (Th, Z=90), protaktinyum (Pa, Z=91), uranyum (U, Z=92), neptünyum (Np, Z=93), plütonyum (Pu, Z=94), amerikyum (Am, Z=95), küriyum (Cm, Z=96), berkelyum (Bk, Z=97), kaliforniyum (Cf, Z=98), aynştaynyum (Es, Z=99), fermiyum (Fm, Z=100), mendelevyum (Md, Z=101), nobelyum (No, Z=102) ve lavrensiyum (Lr, Z=103)) periyodik tablonun yedinci sırasındaki on beş elementten oluşur. 5f atomları olarak da bilinen aktinitlerin yalnızca ilk üyesi olan aktinyumda 5f elektronu mevcut değildir. Bu sebeple bazı çalışmalarda aktinitler grubundan sayılmamaktadır. Aktinitler grubunun toryum ve sonrasındaki üyeleri radyoaktiftirler, kendiliğinden çekirdek bozunmasına uğrarlar ve kararsız olan bu elementlerin sadece ilk dördü doğada bulunur; diğerleri yapay olarak sentezlenirler. Geçiş metallerinin bir alt grubu olan aktinitler, kendilerinin radyoaktif olmalarının yanında, izotop halleri de radyoaktiftirler.

Aktinitler, birçok alanda (enerji, askeri ve endüstri) kullanıldıkları için teknolojide önemli biryere sahiptirler. Radyoaktif özellikleriyle nükleer enerji santrallerinde elektrik enerjisi üretiminde ve denizaltı ve benzeri askeri araçların reaktörlerinde güç üretiminde kullanılır. Bunun yanında uçak yakıt göstergelerinde, endüstriyel ölçüm ve diğer birçok ölçme cihazlarında da sıkça kullanılmaktadır. Plütonyum ve sonrasında gelen diğer aktinit elementleri kanser tedavisinde önemli bir yere sahiptir ve yine bu elementler termonükler ısı üretimi ve nötron oluşturulması gibi bilimsel araştırmalarda da sıklıkla kullanılmaktadır.

Hidrojen tipi bir iyon +Ze yüklü çekirdek etrafında dolanan bir elektrondan oluşur ve (Z-1) pozitif yük taşırlar. Hidrojen benzeri iyonlar, sadece biri pozitif diğeri negatif yüklü iki parçacık arasındaki mesafeye bağlı etkileşime sahip sistemler olduğundan,

relativisitik olmayan Schrödinger denklemi veya relativistik Dirac denklemi gibi analitik olarak çözülebilirler. Hidrojen benzeri atomların basitliği teoriler ve bunların uygulamaları için ideal bir test alanı sağlar.

Aktinitlerle çalışmak oldukça zordur. Radyoaktiviteleri ve kısa yarıömürleri ise deneysel olarak incelenmelerini neredeyse imkânsız kılar. Bu durumlar elementlerin iyon halleri için de geçerlidir. Aktinitler ve hidrojen benzeri aktinitlerle ilgili yapılan çalışmaların bir listesi NIST'de verilmektedir (National Institute of Standarts and Technology Atomic Spectra Database).

NIST'de verilen listede bu çalışma dâhilindeki iyonların seviye enerjileri ve geçiş verileri için yüzden fazla kaynak gösterilmesine rağmen bunların çok azında kullanılabilir veri bulunmaktadır. Dirac yöntemiyle uranyumu da içeren bazı atomların hidrojen benzeri iyonlarının bazı geçişleri için dalga boyları, salınıcı şiddetleri ve geçiş olasılıkları Pal'chikov tarafından hesaplanmıştır (Pal'chikov, 1998). Nahar ve çalışma arkadaşları yaptıkları hesaplamalarda hidrojen benzeri uranyuma yer vererek K_{α} geçişleri için veriler elde etmiştir (Nahar, 2011). Chen ve çalışma arkadaşları H ve He benzeri iyonlar için gerçekleştirdikleri çalışmada tam relativisitik dağılmış dalga yöntemini kullanmışlardır (Chen ve ark., 2014). Ulaşılabilir kaynaklardaki en geniş veri ise Jitrik ve Bunge'nin çalışmalarıdır (Jitrik ve Bunge, 2004). Nokta çekirdek Dirac öz fonksiyonlarını kullanarak elektrik ve manyetik çok kutuplu geçişler için veri türetmişlerdir. U^{91+} iyonun $2p_{3/2}$ - $1s_{1/2}$ geçişinin enerjisi deneysel olarak doppler spektrometresi ile Lupton ve çalışma arkadaşları tarafından ölçülmüştür (Lupton ve ark., 1994).

Bu çalışmada, hidrojen benzeri üç aktinit elementinin; Pa^{90+} (Z=91), U^{91+} (Z=92) ve Np^{92+} (Z=93), Breit-Pauli yaklaşıklığını içeren çok konfigürasyonlu Hartree-Fock (multicofiguration Hartree-Fock, MCHF) yaklaşıklığı (Fisher ve ark., 1997) ile seviye yapıları incelenmiş ve incelenen seviyeler arasındaki elektrik dipol (E1), elektrik kuadrupol (E2), manyetik dipol (M1) ve manyetik kuadrupol (M2) geçişleri için dalga

boyları, ağırlıklı salınıcı şiddetleri ve geçiş olasılıkları hesaplanmıştır. Yapılan incelemede çift pariteli *nl* (*n*=1-9, *l*=0, 2 ve 4) ve tek pariteli *nl* (*n*=2-9, *l*=1 ve 3) konfigürastonlar dikkate alınmıştır.

BÖLÜM 2. ÇOK KONFİGÜRASYONLU HARTREE-FOCK (MCHF) YÖNTEMİ

2.1. Çok Elektronlu Atomlar için Relativistik Olmayan Hamiltonyen ve Dalga Fonksiyonunun Özellikleri

N-elektronlu bir sistemin kararlı hali Schrödinger denklemi ile verilir,

$$H\psi(q_1,...,q_N) = E\psi(q_1,...,q_N) \tag{2.1}$$

burada sistemin halini belirleyen ψ toplam dalga fonksiyonudur. $\psi(r;t)$ ile tanımlanan bir parçacığın t anında $dr = dxdydz$ hacimde bulunma olasılığı,

$$\int_{-\infty}^{+\infty} |\psi(r;t)|^2 dr = 1 \tag{2.2}$$

ile bire normalleşir. Ayırt edilemez parçacıklar olan elektronlar için hamiltonyen işlemcisi, elektronların koordinat değişimlerinden bağımsızdır. Bir atomik sistemin doğru tanımı, tamamen antisimetrik öz fonksiyonların lineer birleşimi ile yapılır.

$$\frac{1}{\sqrt{N!}} \sum_{\wp} (-1)^p \wp\, \psi(q_1,...,q_N) \tag{2.3}$$

$\wp$ iki elektronun koordinatlarını değiştiren işlemci ve p permütasyonun değişim işlemcisinin paritesidir. Böylece

$$\wp_{ij}\psi(q_1,...,q_i,...,q_j,...,q_N)=\psi(q_1,...,q_i,...,q_j,...,q_N), \tag{2.4}$$

$$A=\frac{1}{\sqrt{N!}}\sum_{\wp}(-1)^p\wp \tag{2.5}$$

A antisimetri işlemcisi tanımlanır.

Relativistik olmayan hamiltonyen, toplam yörünge açısal momentum işlemcisi $L=\sum_{i=1}^{N} l_i$ ve toplam spin açısal momentum işlemcisi $S=\sum_{i=1}^{N} s_i$ ile sıra değiştirir:

$$[H, \boldsymbol{L}]=[H, \boldsymbol{S}]=0. \tag{2.7}$$

Böylece H, $\boldsymbol{L}$, L_z, $\boldsymbol{S}$ *ve* S_z eş zamanlı olarak ortaya çıkarlar:

$$H\psi(q_1,...,q_N)=E\psi(q_1,...,q_N) \tag{2.8}$$

$$L^2\psi(q_1,...,q_N)=L(L+1)\psi(q_1,...,q_N) \tag{2.9}$$

$$L_z\psi(q_1,...,q_N)=M_L\psi(q_1,...,q_N) \tag{2.10}$$

$$S^2\psi(q_1,...,q_N)=S(S+1)\psi(q_1,...,q_N) \tag{2.11}$$

$$S_z\psi(q_1,...,q_N)=M_s\psi(q_1,...,q_N). \tag{2.12}$$

γ, hali tam olarak belirleyen ek kuantum sayıları olmak üzere işlemcilerin eş zamanlı özfonksiyonları, $\psi(\gamma LM_L SM_S; q_1,...,q_N)$ ile gösterilebilir.

Dört açısal momentum kuantum sayılarına ek olarak, Hamiltonyen işlemcisinin öz fonksiyonları bunların pariteleri ile gösterilir:

$$\Pi\psi(q_1,...,q_N) = (-1)^k \psi(q_1,...,q_N). \tag{2.6}$$

Parite işlemcisinin tanımından ($\Pi^2 = 1$) öz değerinin ± 1 (+1'e ait öz fonksiyon çift, -1'e ait öz fonksiyon tek olarak adlandırılır) olduğu açıktır. Parite işlemcisi de, Hamiltonyen ve açısal momentum işlemcileriyle sıra değiştirir böylece atomik öz fonksiyonlar Π'nin de öz fonksiyonları olarak alınabilir.

2.2. Çok Elektronlu Sistemler

Bir öz değer problemi olan (2.1) denklemindeki öz fonksiyonun çözümleri olan belirli *E* değerleri, sistemin toplam enerjisinin mümkün değerini gösterirler. Schrödinger denklemi yalnızca bir elektronlu sistemler için tam olarak çözülebilir. Ancak çok elektronlu sistemlerin öz fonksiyonlarının gerçek şekilleri bilinmemektedir, bunlar için bazı genel yöntemlerle yaklaşık dalga fonksiyonları elde edilir.

Çok elektronlu bir atomun ayrıntılı incelenmesi çok zor olduğundan, spin yörünge etkileşimleri düzeltme gibi dikkate alınarak merkezi alan yaklaşıklığındaki tüm küçük etkiler ihmal edilir. Dış alan yokluğunda *N* elektronlu atomun hamiltonyeni

$$H = \sum_{i=1}^{N}\left(-\frac{1}{2}\nabla_i^2 - \frac{Z}{r_i}\right) + \sum_{i>j}^{N}\frac{1}{r_{ij}} \tag{2.13}$$

sırasıyla kinetik enerji, potansiyel enerji ve elektronlar arası Coulomb itme terimlerinden oluşur; r_i *i*. elektronun bağıl koordinatını, r_{ij} *i* ve *j* elektronları arasındaki

uzaklığı gösterir. (2.13) hamiltonyeni pertürbe ve pertürbe olmamış şeklinde iki kısma ayrılabilir:

$$H = H_c + H_1 \tag{2.14}$$

$$H_c = \sum_{i=1}^{N}\left(-\frac{1}{2}\nabla_{r_i}^2 + \mathrm{V(r_i)}\right) = \sum_{i=1}^{N} h_i\,, \qquad h_i = -\frac{1}{2}\nabla_{r_i}^2 + \mathrm{V(r_i)} \tag{2.15}$$

$$H_1 = \sum_{i<j}^{N}\frac{1}{r_{ij}} - \sum\left(\frac{Z}{r_i} + V(r_i)\right) = \sum_{i<j}^{N}\frac{1}{r_{ij}} - \sum_i S(r). \tag{2.16}$$

Terimlere ayrılan hamiltonyenin öz değer ve öz fonksiyonları

$$E = \sum_{i}^{N} E_i\,, \tag{2.17}$$

$$\psi(q_1,...,q_N) = \prod_{i=1}^{N}\phi(\alpha_i;q_i) \tag{2.18}$$

şeklinde yazılabilirler. Buradaki ϕ, bireysel spin yörüngemsileri, bir-elektron denklemlerinin çözümleridir:

$$[-\frac{1}{2}\nabla^2 + U(r)]\phi(\alpha,q) = E\phi(\alpha,q)\,. \tag{2.19}$$

(2.4) koordinat değişiminden elde edilen öz fonksiyonlar birleştirilerek antisimetrik bir fonksiyon oluşturulur:

$$\Phi(q_1,...,q_N) = A\prod_{i=1}^{N}\phi(\alpha_i,q_i) = \frac{1}{\sqrt{N!}}\begin{vmatrix} \phi_{(\alpha_1,q_i)} & \cdots & \phi_{(\alpha_1,q_N)} \\ \phi_{(\alpha_2,q_i)} & \cdots & \phi_{(\alpha_2,q_N)} \\ \cdots & \cdots & \cdots \\ \phi_{(\alpha_N,q_i)} & \cdots & \phi_{(\alpha_N,q_N)} \end{vmatrix} \quad (2.21)$$

Yukarıdaki Slater determinantıyla elde edilen dalga fonksiyonu hem antisimetriktir hem de Pauli dışarlama ilkesini sağlar. Buradaki her bir spin-yörüngemsinin paritesi $(-1)^l$ kullanılarak Slater determinantının paritesi

$$\pi = (-1)^{l_1}(-1)^{l_2}...(-1)^{l_n} = (-1)^{\sum_i l_i} \quad (2.22)$$

elde edilir. Böylece parite, açısal momentum kuantum sayılarının toplamına göre tek veya çifttir.

2.3. Hartree-Fock Yöntemi

Elektronlar arası elektrostatik etkileşme terimi çok elektronlu sistemlerin relativistik olmayan yaklaşıklıktaki çözümünü zorlaştırır. Her elektron, diğer elektronların oluşturduğu aynı (*Z/r+V(r)*) potansiyelinde hareket ettiği için *V(r)* potansiyelinin seçimi önemlidir. Hartree, çekirdeğin ve diğer elektronların oluşturduğu, etkin potansiyel altında hareket eden elektronu için türettiği Hartree denklemlerinin çözümünde öz uyumlu alan olarak anılan tekrarlamalı bir yöntem kullanmıştır. Radyal fonksiyonların çarpımı şeklindeki küresel simetrik dalga fonksiyonu olan Hartree denklemlerinin Pauli dışarlama ilkesini sağlayacak şekilde düzenlemesini Fock gerçekleştirmiştir. Böylece oluşan Hartree-Fock potansiyeli ve Hartree-Fock denklemi:

$$V(q_i) = -\frac{Z}{r} + \sum_{\mu} V_{\mu}^{d}(r_i) - V_{\mu}^{dt}(q_i) \quad (2.23)$$

$$\left[-\frac{1}{2}\nabla_{r_i}^2 + V(q_i)\right]U_\lambda(q_i) = EU_\lambda . \tag{2.24}$$

Her kabuktan gelen simetrik katkıların toplamı olan V^d küresel simetriktir ve

$$V^d(r_i) = \sum_\mu V_\mu^d(r_i) = \int u_\mu^*(q_j)\frac{1}{r_{ij}}u_\mu(q_j)dq_j = \int u_\mu^*(r_j)\frac{1}{r_{ij}}u_\mu(r_j)dr_j \tag{2.25}$$

$$V^{dt}(q_i) = \sum_\mu V_\mu^{dt}(q_i) \tag{2.26}$$

ile tanımlanır. V^{dt} ise Fock'un türettiği değiş-tokuş (takas) potansiyelidir. Değiş-tokuş işlemcisi yalnızca uzay koordinatlarına etkir.

Hartree-Fock denklemlerindeki u_μ spin yörüngemsilerinin her biri ayrı ayrı Schrödinger denklemi görünümündedir. V potansiyeli, V^d ve V^{dt} işlemcileri yoluyla spin yörüngemsilerine bağlı olduğu için spin yörüngemsiler gerçek öz değer denklemleri değillerdir. Hartree-Fock integral-diferansiyel denklemler sisteminin çözümü için önce $u_\alpha^1, u_\beta^1, ..., u_\upsilon^1$ yaklaşık spin yörüngemsilerine karşılık gelen Hartree-Fock potansiyelinin yaklaşık ifadesi $V^{(1)}$ hesaplanır. Sonra Hartree-Fock denklemleri bu $V^{(1)}$ potansiyeli ile çözülerek yeni $u_\alpha^2, u_\beta^2, ..., u_\upsilon^2$ spin yörüngemsiler elde edilir. Bunlardan yeni bir $V^{(2)}$ potansiyeli bulunur. Bu döngü spin yörüngemsileri bir önceki döngüde elde edilen $V^{(n-1)}$ potansiyeli ile özdeş olan $V^{(n)}$ potansiyeline belli bir yaklaşıklıkla eşitleninceye kadar tekrarlanır. Bu şekilde elde edilen Hartree-Fock potansiyeli atomun veya iyonun öz uyumlu alanıdır.

2.4. Çok Konfigürasyonlu Hartree-Fock Yaklaşıklığı (Multiconfiguration Hartree-Fock Approximation–MCHF)

Çok elektronlu sistemlerde varyasyonel dalga fonksiyonu $\Psi = \Phi(\gamma LS)$ konfigürasyonu olarak seçilir. Buradaki radyal dalga fonksiyonları belli değildir ve varyasyonlardaki kararlılık şartı Hartree-Fock denklemlerine götürür. Varyasyonlar yerine

$$\Psi(\gamma LS) = \sum_{i}^{N} c_i \Phi_i(\gamma_i LS) \tag{2.27}$$

çok konfigürasyonlu açılım seçilirse, radyal fonksiyonlardaki varyasyona göre kararlılık şartı Hartree-Fock yöntemlerine benzer diferansiyel denklemler takımına götürür. Diferansiyel denklemler, karışım (açılım) katsayılarının değişiminden ortaya çıkan matris öz değer denklemine eşlenir ve bu iki yöntem eş zamanlı olarak çözülür. Bu varyasyonel fonksiyonu temel alan yöntem, çok konfigürasyonlu Hartree-Fock yöntemi olarak bilinir.

Çok konfigürasyonlu Hartree-Fock yönteminde dalga fonksiyonu ortonormal hal fonksiyonlarının lineer kombinasyonudur:

$$\psi(\gamma LS) = \sum_{i=1}^{M} c_i \phi(\gamma_i LS); \qquad \sum_{i=1}^{M} c_i^2 = 1. \tag{2.28}$$

Enerji ise

$$\varepsilon(\gamma LS) = \sum_{i=1}^{M}\sum_{j=1}^{M} c_i c_j \langle \phi(\gamma_i LS)|H|\phi(\gamma_j LS)\rangle = \sum_{i=1}^{M}\sum_{j=1}^{M} c_i c_j H_{ij}$$

$$= \sum_{i=1}^{M} c_i^2 H_{ii} + 2\sum_{i>j}^{M} c_i c_j H_{ij}\,, \tag{2.29}$$

şeklindedir. H_{ij} Hamiltonyen matrisi, $\boldsymbol{c}=(c_1,c_2,\ldots,c_m)^t$ karışım katsayılarının oluşturduğu bir sütun vektörüdür. Bu durumda enerji

$$E = c^t H c \tag{2.30}$$

şeklinde yazılabilir. Etkileşme matris elemanları radyal fonksiyonlara ($P,[P(a,b),P(b,r)...]^t$ sütun matris) bağlı olduğu için enerji fonksiyoneli hem P ye hem de $\boldsymbol{c}$ ye bağlı olur. MCHF denklemlerinin türetilmesinde, enerji daha da indirgenmiş olur ve radyal fonksiyonlar $\boldsymbol{c}$ cinsinden ifade edilir.

Hamiltonyen matris elemanları açısal momentum teorisinden elde edilirler:

$$H_{ij} = \sum_{ab} \omega_{ab}^{ij} I(a,b) + \sum_{abcd;k} v_{abcd;k}^{ij} R^k(ab,cd) \tag{2.31}$$

Bu durumda enerji

$$\varepsilon(\gamma LS) = \sum_{ab} \omega_{ab} I(a,b) + \sum_{abcd;k} v_{abcd;k} R^k(ab,cd) \tag{2.32}$$

olur. *ab* ve *abcd* üzerinden toplam, her bir konfigürasyon halinde bulunan yörüngeler üzerindendir. Burada

$$\omega_{ab} = \sum_{i=1}^{m}\sum_{j=1}^{M} c_i c_j \omega_{ab}^{ij} \qquad\qquad v_{abcd;k} = \sum_{i=1}^{M}\sum_{j=1}^{M} c_i c_j v_{ab}^{ij} \tag{2.33}$$

dır. $I(a,b)$, $R^k(abcd;k)$ integrallerinin simetri özelliği kullanılarak toplam en aza indirilebilir, $I(a,b)$ için $a \le b$, $a \le c$ ve $b \le d$ olduğu varsayılır.

Hartree-Fock denklemlerinin türetilmesi için, karalılık şartı Lagrange çarpanlarını içeren bir fonksiyona uygulanmalıdır:

$$F(\boldsymbol{P},\boldsymbol{c}) = \varepsilon(\gamma LS) + \sum_{a\le b} \delta_{l_a l_b} \lambda_{ab} \langle a|b\rangle - E\sum_{i=1}^{M} c_i^2 \,. \qquad (2.34)$$

c_i'deki varyasyonlara göre kararlılık şartının türetilmesinde, $\varepsilon(\gamma LS)$ için en uygun şekil (2.29) denklemidir. Bu denklem köklü bir denkleme öncülük eder:

$$H\boldsymbol{c} = E\boldsymbol{c}\,. \qquad (2.34)$$

(2.34)'deki λ_{ab} Lagrange çarpanı ve E sistemin toplam enerjisidir. *P(a;r)* radyal fonksiyonlardaki değişmelere göre bir kararlılık şartı gereği her bir radyal fonksiyon, bir denklem sistemine öncülük eder. P, (2.8) kararlılık şartı için değiştirilecek radyal fonksiyon olursa,

i) $\omega_{aa} I(a,a)$'nın değişimi, $\quad -\omega_{aa}\int_0^{\infty} \delta P(a,r) H \delta P(a,r) dr$,

ii) $\sum_{b_{jk}} v_{abab;k} R^k(ab,ab)$'nin değişimi, $\quad 2\omega_{aa}\int_0^{a} \delta P(a,r)\frac{1}{r} Y(a,r) P(a,r) dr$

iii) Diğer integrallerin değişimi, $\quad 2\omega_{aa}\int_0^{a} \delta P(a,r)\frac{1}{r} \times dr$

dir. Bazı katkılar $I(a,b)$ köşegen olmayan integrallerinden meydana gelir. Bu integrallere Slater integralleri denir. Ortonormal sınırlamalar ile beraber bu varyasyonların toplamı

$$2\omega_{aa}\int_0^{\infty} \delta P(a,r)\theta(r) dr = 0$$

şeklindedir. $\delta P(a,r)$ tüm küçük değişimler için bu değişim $\theta(r)=0$ şartını ve

$$\left(\frac{d^2}{dr^2}+\frac{2}{r}[Z-Y(nl;r)]-\frac{l(l+1)}{r^2}-\varepsilon_{nl;nl}\right)p(nl;r)=\frac{2}{r}X(nl;r))+\sum_{n'\neq n}\varepsilon_{nl,n'l}P(n'l;r)$$

eşitliğini gerektirir. Burada a, yörüngemsi kuantum sayıları, ε_{nl} ise

$$\varepsilon_{nl;nl}=\frac{2\lambda_{nl,nl}}{\omega_{nl,nl}}; \qquad \varepsilon_{nl;n'l}=\frac{2\lambda_{nl,n'l}}{\omega_{nl,n'l}}$$

dir. Bu tanımlamalardan köşegen ve köşegen olmayan enerji parametreleri matrisinin simetrik olmadığı görülür. Buna rağmen

$$\omega_{nl,n'l}\varepsilon_{nl,n'l}=\omega_{n'l,n'l}\varepsilon_{n'l,nl}$$

dir.

i) Doluluk sayılarını $\omega_{nl,n'l'}$ tam sayı kabul edilirler, bunlar aslında beklenen doluluk sayılarıdır.

ii) $X(nl;r)$ fonksiyonu, bir konfigürasyon halindeki elektronların yer değişiminin yanı sıra konfigürasyonlar arasındaki etkileşimden meydana gelir.

2.5. Breit-Pauli Hamiltonyeni ve Dalga Fonksiyonu

Ağır iyonlarda ve çok iyonlaşmış sistemlerde relativistik etkinin önemi büyüktür; hatta hafif atom veya iyonlar için yapılan hesaplamalarda da deney sonuçları ile iyi uyuşan detaylı bir teori için relativistik etkiler hesaba katılmalıdır. Bunun için Schrödinger

denklemine en düşük mertebeden relativistik katkıları almak yeterlidir. Bu düzeltmeler α ($\alpha = 1/c$, α ince yapı sabiti ve c ışık hızıdır.) kuvvetlerinde bir açılımla relativistik çok elektronlu denklemlerden türetilebilir.

α^2 mertebesinde bir düzeltme için ortaya çıkan hamiltonyen Breit-Pauli Hamiltonyenidir. Bu hamiltonyen relativistik olmayan hamiltonyen için birinci (α^2) mertebe düzeltmedir. Ancak yüksek mertebe pertürbasyon teorisinde yanlış sonuç verebilir. Breit-Pauli Hamiltonyeni

$$H_{BP} = H_{NR} + H_{RS} + H_{FS} \tag{2.35}$$

şeklinde yazılır. Burada, H_{NR} relativistik olmayan (Non-Relativistic) hamiltonyen, H_{RS} relativistik kayma (Relativistic Shift), H_{FS} ince yapı (Fine Structure) işlemcisidir. H_{RS} işlemcisi $\boldsymbol{L}$ ve $\boldsymbol{S}$ ile sıra değiştirir ve H_{MC} kütle düzeltmesi (Mass Correction), H_{D1} ve H_{D2} sırası ile bir ve iki cisim Darwin terimleri, H_{OO} yörünge-yörünge (Orbit-Orbit) terimi, H_{SSC} spin-spin (Spin-Spin Contact) terimi olmak üzere beş terimden oluşur,

$$H_{RS} = H_{MC} + H_{D1} + H_{D2} + H_{OO} + H_{SSC}. \tag{2.36}$$

$$H_{MC} = -\frac{\alpha^2}{8}\sum_{i=1}^{N}(\nabla_i^2) + \nabla_i^2 \tag{2.37}$$

$$H_{D1} = -\frac{\alpha^2 Z}{8}\sum_{i=1}^{N}(\nabla_i^2)(\frac{1}{r_i}) \tag{2.38}$$

$$H_{D2} = -\frac{\alpha^2}{4}\sum_{i<j}^{N}(\nabla_i^2)(\frac{1}{r_{ij}}) \tag{2.39}$$

$$H_{OO} = -\frac{\alpha^2}{2}\sum_{i<j}^{N}\left[\frac{P_i P_j}{r_{ij}} + \frac{r_{ij}(r_{ij}.P_i)P_j}{r_{ij}^3}\right] \tag{2.40}$$

$$H_{SSC} = -\frac{8\pi\alpha^2}{3}\sum_{i<j}^{N}(S_i.S_j)\delta(r_i r_j) \tag{2.41}$$

H_{FS} terimi, spin ve yörünge açısal momentumları arasındaki etkileşimi tanımlar. H_{FS} bir etkileşme terimi olduğu için ***L*** ve ***S*** ile sıra değiştirmezken ***J*** =***L*** + ***S*** toplam açısal momentumla sıra değiştirir. Çekirdek spin-yörünge (Spin-Orbit), H_{SOO} spin diğer yörünge (Spin-other Orbit) ve H_{SS} spin-spin terimlerinden oluşur.

$$H_{FS} = H_{SO} + H_{SOO} + H_{SS} \tag{2.42}$$

$$H_{SO} = \frac{\alpha^2 Z}{2}\sum_{i=1}^{N}(\frac{1}{r_i^3})l_i.s_i \tag{2.43}$$

$$H_{SOO} = -\frac{\alpha^2}{2}\sum_{i<j}^{N}\frac{r_{ij}\times p_i}{r_{ij}^3}(s_i + 2s_j) \tag{2.44}$$

$$H_{SS} = \alpha^2\sum_{i<j}^{N}\frac{1}{r_{ij}^3}\left[s_i.s_j 3\frac{(s_i.r_{ij})(s_j.r_{ij})}{r_{ij}^2}\right]. \tag{2.45}$$

Breit-Pauli Hamiltonyeni ***J*** ile sıra değiştirir ve öz fonksiyonları J^2 ve J_z'nin öz fonksiyonları olmalıdır. Dalga fonksiyonu $\Phi\gamma LSJM_J$, *LS* çiftlenimli konfigürasyon hal fonksiyonları olmak üzere;

$$\Psi(\gamma LM_J) = \sum_{i=1}^{M} c_i\Phi(\gamma_i L_i S_i JM_J) \tag{2.46}$$

$$\Phi(\gamma LSJM_J) = \sum\left\langle LM_L SM_s \middle| LSJM_j \right\rangle\Phi(\gamma LM_l SM_s) \tag{2.47}$$

ile verilen çok konfigürasyonlu lineer birleşimdir. *L* ve *S* farklı *LS*'li konfigürasyon hal fonksiyonlarının iyi kuantumlu sayıları olmadığı için farklı *LS* terimlerinin karışımı alınır, dalga fonksiyonu ara çiftlenime tabi olur. Relativistik olmayan çok konfigürasyonlu Hartree-Fock yönteminden konfigürasyon hal fonksiyonları, Breit Pauli yaklaşıklığından karışım katsayıları elde edilerek matris öz değer problemine ulaşılır:

$$H_{ij} = \left\langle \gamma_i L_i S_i J M_j \left| H_{BP} \right| \gamma_j L_j S_j J M_j \right\rangle . \tag{2.48}$$

Böylece Breit-Pauli Hamiltonyeninin öz değer ve öz fonksiyonlarını bulma problemi, *LSJ* çiftlenimli konfigürasyon hal fonksiyonları arasındaki matris elemanlarının bulunmasına ve her J değeri için matris köşegenleştirmesine indirgenir.

2.6. Geçişler

Bir atomik sistemin enerji seviyeleri genellikle yarı ömrü sonsuz olan haller olarak kabul edilir. Bir elektromanyetik alan varlığında bu durum değişebilir. Soğurulan foton, atomu veya iyonu yüksek seviyelere uyarır, uyarılmış iyon elektromanyetik alan yokluğunda kendiliğinden yayma ile bozunur.

İki hal arasındaki elektromanyetik geçiş, açısal momentum ve fotona eşlik eden parite ile tanımlanır. Soğurulan veya yayımlanan fotonun paritesi $\pi=(-1)^k$ (k açısal momentum) ise geçişe elektrik multipol geçişi, paritesi $\pi=(-1)^{k+1}$ ise manyetik multipol geçişi denir. Her geçiş paritesi π ve rankı k olan $O^{\pi(k)}$ küresel tensör işlemcisi ile tanımlanır.

2.6.1. Geçiş özellikleri

Bir üst seviyeden bir alt seviyeye geçiş oranı (veya olasılığı);

$$A^{\pi k}\left(\gamma' J', \gamma J\right) = 2C_k \left[\alpha\left(E_{\gamma' J'} - E_{\gamma J}\right)\right]^{2k+1} \frac{S^{\pi k}(\gamma' J', \gamma J)}{g_{J'}} \tag{2.49}$$

ile verilir. Burada $S^{\pi k}(\gamma' J', \gamma J)$ indirgenmiş matris elemanının karesi olan çizgi şiddetidir, $g_{J'}$ ise üst seviyenin istatistiksel ağırlığıdır:

$$S^{\pi k}\left(\gamma J, \gamma' J'\right) = \sum_{M, M', q} \left| < \gamma J \parallel O_q^{\pi(k)} \parallel \gamma J' > \right|^2 . \tag{2.50}$$

$$g_{J'} = 2J' + 1 \tag{2.51}$$

$$C_k = \frac{(2k+1)(k+1)}{k\left((2k+1)!!\right)^2} . \tag{2.52}$$

Ağırlıklı salınıcı şiddeti soğurma ya da yaymadaki geçişi temsil eder. Düşük haldeki bir atom foton soğurarak üst seviyeye uyarıldığında (çıktığında) salınıcı şiddeti

$$f^{\pi k}(\gamma J, \gamma' J') = \frac{1}{\alpha} c_k \left[\alpha(E_{\gamma' J'} - E_{\gamma J})\right]^{2k-1} \frac{S^{\pi k}(\gamma J, \gamma' J')}{g_J} \tag{2.53}$$

dir. Yayma salınıcı şiddeti için sadece işaret değiştirilir. Bu özellik çizgi şiddeti gibi iki seviye arasında tamamen simetriktir. Ağırlıklı salınıcı şiddeti

$$gf^{\pi k}(\gamma J, \gamma' J') = g_J f^{\pi k}(\gamma J, \gamma' J') \tag{2.54}$$

ile verilir.

2.6.2. Kesin ve yaklaşık seçim kuralları

Kesin seçim kuralları tüm konfigürasyon hal fonksiyonları için uygulanır. Bir atomik hal fonksiyonunun açılımındaki tüm konfigürasyon hal fonksiyonları aynı paritelidir.

Manyetik dipol işlemcileri $(-1)^{k-1}$, elektrik dipol işlemcileri $(-1)^{k}$, paritelidirler. İki halin paritesi π ve π' ile gösterilirse

$$E^{(k)};\frac{\pi'}{\pi}=(-1)^{k} \tag{2.55}$$

$$M^{(k)};\frac{\pi'}{\pi}=(-1)^{k-1} \tag{2.56}$$

şeklindedir. Bir atomik fonksiyonun diğer bir özelliği toplam *J* ile ilgilidir.

$$\Delta J = J - J' = 0,\pm 1,...,\pm k \quad k \le J + J' \tag{2.57}$$

$J = J' = 0$ ise izinli değildir.

Uzay açısal momentumların seçim kuralları için $E^{(k)}$ işlemcisine karşılık gelen tensörün rankı *k* ise seçim kuralları

$$E^{(k)};\Delta S = 0$$

$$\Delta L = 0,\pm 1,...,k \quad k \le L + L' \tag{2.58}$$

dür. Uzay tensörü $MA^{(k)}$, *k* ranklı ve $MB^{(k)}$, *k*-1 ranklı ise uzay ve spin momentumları için kurallar;

$$MA^{(k)};\ \Delta S = 0\ \ \Delta L = 0,\pm 1,...,k\ \ k \le L + L'$$

$$MB^{(k)};\ \Delta S = 0,\pm 1\ \Delta L = 0,\pm 1,...,k\ \ k - 1 \le L + L' \qquad (2.59)$$

şeklindedir.

BÖLÜM 3. SONUÇLAR VE TARTIŞMA

Bu çalışmada hidrojen benzeri üç aktinit (Pa^{90+}, U^{91+} ve Np^{92+}) iyonunun çift pariteli *nl* (*n*=1-9, *l*=0, 2 ve 4) ve tek pariteli *nl* (*n*=2-9, *l*=1 ve 3) seviyelerinin enerjileri ve bu seviyeler arasındaki elektrik dipol (E1), elektrik kuadrupol (E2), manyetik dipol (M1) ve manyetik kuadrupol (M2) geçişlerinin dalga boyları, ağırlıklı salınıcı şiddetleri ve geçiş olasılıkları hesaplanmaktadır. Hesaplamalarda Breit-Pauli yaklaşıklığını içeren çok konfigürasyonlu Hartree-Fock yaklaşıklığı (Fischer ve ark., 1997) ile hazırlanmış MCHF atomik yapı paketi (Fischer, 1991) kullanılmıştır. Elde edilen sonuçlar ulaşılabilir kaynaklarla karşılaştırılarak yorumlanmış.

Büyük Z değerine sahip atomlar ve iyonların fiziksel özellikleri günümüzde hala tam anlamıyla bilinmemektedir. Bugüne kadar yapılan özellikle deneysel çalışmaların azlığı ve mevcut çalışmaların az seviye ile sınırlı kalmış olması bu çalışmanın gerçekleştirilmesinde etkin rol oynamıştır. Birinci bölümde özetlenmiş olan ulaşılabilir kaynaklardaki teorik çalışmalarda *nl* (n=1-26 *l*=0-25) mevcutken deneysel veriler U^{91+} iyonu için $2s_{1/2}$, $2p_{1/2}$ ve $2p_{3/2}$ seviyeleriyle sınırlı kalmıştır. Bu kaynakların hiçbirinde geçiş verilerini içeren deneysel çalışma bulunmamaktadır.

3.1. Hidrojen Benzeri Pa, U ve Np'nin Seviye Enerjileri

Hidrojen benzeri protaktinyum, uranyum ve neptünyum (Pa^{90+}, U^{91+} ve Np^{92+}) iyonlarının MCHF yöntemiyle hesaplanan seviye enerjileri ulaşılabilir kaynaklardaki teorik ve deneysel çalışmaların sonuçlarıyla karışılaştırılarak tablolar halinde sunulmaktadır. Pa^{90+}, U^{91+} ve Np^{92+} iyonlarının çift pariteli halleri Tablo 3.1'de, tek pariteli halleri ise Tablo 3.2'de verilmektedir. Enerji değerleri hidrojen benzeri hallerin temel hal seviyesi olan $1s_{1/2}$ seviyesine göre (bu seviyenin enerjisi 0,00 cm^{-1} alınarak) ve *n*, *l* ve *j*'nin artan değerlerine göre sıralanmıştır. MCHF yöntemiyle elde edilen

seviye enerjileri cm^{-1} birimindedir. Karşılaştırma değerlerinin bazıları eV bazıları ise Rydberg birimlerindedir. Farklı birimlerdeki değerler cm^{-1} birimine çevrilmiştir ve çevrilen değerler tablo altında belirtilmiştir. Enerji tablolarındaki ilk sütünlar iyonların seviyelerini; konfigürasyonlarını ve terimlerini, diğer üç sütunda ise sırasıyla hidrojen benzeri protaktinyum, uranyum ve neptünyum MCHF yöntemiyle hesaplanan enerji değerlerini belirtmektedir. Karşılaştırma değerleri MCHF sonucunun hemen altında yer almaktadır. Bu değerlerin üzerinde yer alan üst indisler tablo altında verilen kaynakçalarını göstermektedir.

Jitrik ve Bunge'nin çalışması iki set halinde gerçekleştirilmiştir. Tablo 3.1. ve Tablo 3.2.'de öncelikler set 1 değerleri kullanılmış daha sonra set 2'de set 1'de olmayan seviyeler tabloya ilave edilmiştir.

Tablo 3.1. Hidrojen benzeri protaktinyum, uranyum ve neptünyumun çift pariteli seviye enerjileri (cm^{-1})

Seviye	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$1s_{1/2}$	0,00	0,00	0,00
	0,00[a]	0,00[a]	0,00[a]
$2s_{1/2}$	758824130	777536300,4	796547178,9
	771185725,38[a]	790941302,62[a]	811077702,33[a]
	768380598,6358[c]	787906266,777[c]	807881638,3571[c]
$3s_{1/2}$	905849084,3	928275634,6	951060970,2
	924592796,33[a]	948590120,33[a]	973068089,38[a]
$3d_{3/2}$	911069901,6	933681576,9	956655197
	935012726,37[a]	959576170,58[a]	984647920,28[a]
$3d_{5/2}$	913731003,5	936465907,2	959567126,1
	937691747,12[a]	962380060,17[a]	987581181,71[a]
$4s_{1/2}$	955416909,8	979042063	1003042765
	976713863,89[a]	1002105701,30[a]	1028008287,20[a]
$4d_{3/2}$	957206127,7	980886798,6	1004943515
	981055746,12[a]	1006681754,50[a]	1032829799,00[a]
$4d_{5/2}$	958255702,2	981983111,6	1006088092
	982196664,30[a]	1007876106,40[a]	1034079529,20[a]
$5s_{1/2}$	977771644,5	1001923853	1026458435
	1000196562,00[a]	1026197957,50[a]	1052722187,30[a]
$5d_{3/2}$	978551259	1002725258	1027281696
	1002392329,90[a]	1028511341,20[a]	1055158787,50[a]
$5d_{5/2}$	979047943	1003243118	1027821362
	1002977119,70[a]	1029123533,70[a]	1055799381,00[a]
$5g_{7/2}$	979305926,6	1003512376	1028102248
	1003255502,10[a]	1029414625,60[a]	1056103622,00[a]
$5g_{9/2}$	979471017,2	1003684956	1028282573
	1003419085,50[a]	1029585596,50[a]	1056282230,50[a]
$6s_{1/2}$	989706530,4	1014135856	1038950986
	1012694979,20[a]	1039013392,20[a]	1065860505,20[a]
$6d_{3/2}$	990099699,5	1014539075	1039364239
	1013952747,60[a]	1040338159,90[a]	1067255431,70[a]
$6d_{5/2}$	990365176,3	1014815398	1039651701
	1014290768,70[a]	1040692010,50[a]	1067625687,70[a]
$6g_{7/2}$	990505912,1	1014962083	1039804509
	1014452140,30[a]	1040860755,70[a]	1067802062,20[a]
$6g_{9/2}$	990600042,8	1015060449	1039907251
	1014547105,20[a]	1040960016,30[a]	1067905764,30[a]

[a,b] Jitrik ve Bunge, 2004 , [c] Yerokhin ve Shabaev, 2015, (Bu değerler Rydberg biriminden cm^{-1} birimine çevrilmiştir.)

Tablo 3.1. (Devamı)

Seviye	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$7s_{1/2}$	996817033,7	1021409824	1046390389
	1020115459,40[a]	1046618796,30[a]	1073654069,80[a]
$7d_{3/2}$	997034391	1021632289	1046617931
	1020901005,70[a]	1047446002,60[a]	1074524885,40[a]
$7d_{5/2}$	997188297,8	1021792217	1046784028
	1021113492,80[a]	1047668431,10[a]	1074757616,50[a]
$7g_{7/2}$	997271586,7	1021878906	1046874209
	1021215143,20[a]	1047774727,00[a]	1074868719,00[a]
$7g_{9/2}$	997329228,7	1021939103	1046937043
	1021275026,60[a]	1047837321,10[a]	1074934115,90[a]
$8s_{1/2}$	1001393461	1026090766	1051177083
	1024874168,30[b]	1051494472,80[b]	1078648670,60[b]
$8d_{3/2}$	1001519898	1026219917	1051308918
	1025396903,00[b]	1052044830,90[b]	1079227936,80[b]
$8d_{5/2}$	1001613585	1026317094	1051409663
	1025538991,00[b]	1052193560,4[b]	1079383548,40[b]
$8g_{7/2}$	1001665525	1026371073	1051465729
$8g_{9/2}$	1001702561	1026409715	1051506027
$9s_{1/2}$	1004516296	1029284665	1054442877
	1028105733,80[b]	1054804599,70[b]	1082038624,90[b]
$9d_{3/2}$	1004589150	1029358902	1054518474
	1028470846,10[b]	1055188949,80[b]	1082443102,80[b]
$9d_{5/2}$	1004646215	1029417951	1054579544
	1028570466,40[b]	1055293222,30[b]	1082552195,90[b]
$9g_{7/2}$	1004679021	1029451973	1054614808
$9g_{9/2}$	1004703208	1029477172	1054641047

[a,b] Jitrik ve Bunge, 2004 , [c] Yerokhin ve Shabaev, 2015 (Bu değerler Rydberg biriminden cm^{-1} birimine çevrilmiştir.)

Tablo 3.2. Hidrojen benzeri protaktinyum, uranyum ve neptünyumun tek pariteli seviye enerjileri (cm^{-1})

Seviye	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$2p_{1/2}$	753720841,9	772079710,6	790717162
	771185725,38[a]	790941302,62[a]	811077702,33[a]
	768944209,43[c]	788519138,64[c]	808530076,08[c]
$2p_{3/2}$	782195983,7	801897031,7	821925341,7
	806114671,02[a]	827765644,44[a]	849890127,02[a]
	803859733,28[c]	825323439,00[c]	847317274,67[c]
		823733600[d]	
		824136900[e]	
		824370800[f]	
		824136900[g]	
		825209600[h]	
		824136900[ı]	
		823991700[i]	
		824128800[j]	
$3p_{1/2}$	904653367,8	927007971,2	949718126,1
	924592796,33[a]	948590120,33[a]	973068089,38[a]
$3p_{3/2}$	911234001,9	933857327	956843293,8
	935012726,37[a]	959576170,58[a]	984647920,28[a]
$4p_{1/2}$	955006979	978609426,7	1002586536
	976713863,89[a]	1002105701,30[a]	1028008287,20[a]
$4p_{3/2}$	957289121,3	980975413,5	1005038063
	981055746,12[a]	1006681754,50[a]	1032829799,00[a]
$4f_{5/2}$	958240726,7	981967076,9	1006070934
	982196664,30[a]	1007876106,40[a]	1034079529,20[a]
$4f_{7/2}$	958786583,6	982537888,5	1006667566
	982737499,78[a]	1008441566,20[a]	1034670460,70[a]
$5p_{1/2}$	977594627,8	1001737577	1026262571
	1000196562,00[a]	1026197957,50[a]	1052722187,30[a]
$5p_{3/2}$	978594228,5	1002771023	1027330402
	1002392329,90[a]	1028511341,20[a]	1055158787,50[a]
$5f_{5/2}$	979036364,4	1003230742	1027808142
	1002977119,70[a]	1029123533,70[a]	1055799381,00[a]
$5f_{7/2}$	979308300,2	1003514916	1028104965
	1003255502,10[a]	1029414625,60[a]	1056103622,00[a]

[a,b] Jitrik ve Bunge 2004, [c] Yerokhin ve Shabev, 2005 (Bu değerler Rydberg biriminden cm^{-1} birimine çevrilmiştir.), [d,e] Lupton ve ark., 1994, [f,g] Stöhlker ve ark., 1993. [h,ı] Briand ve ark., 1990, [i,j] Stöhlker ve ark., 2000. ([d,e,f,g,h,ı,i,j] kaynaklarından alınan değerler eV biriminden cm^{-1} birimine çevrilmiştir.)

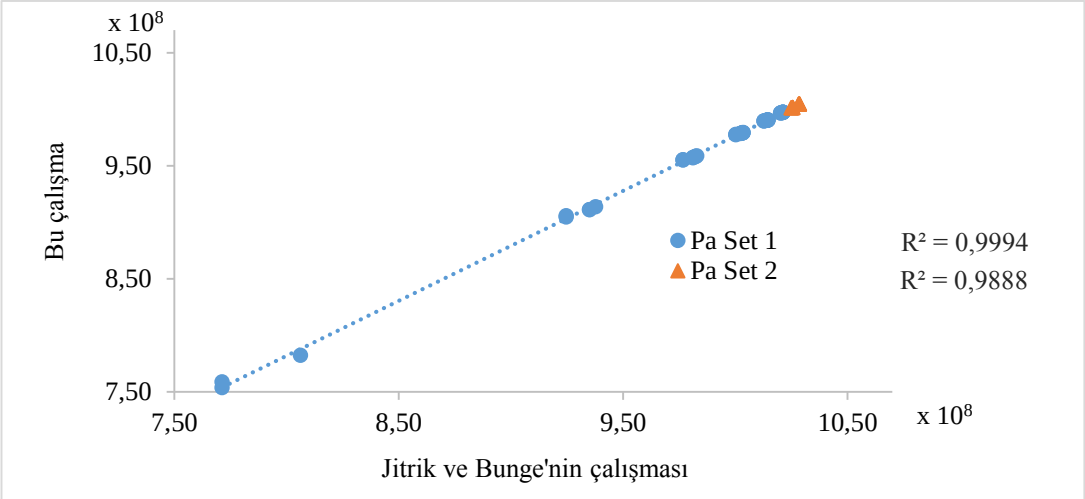
Tablo 3.2. (Devamı)

Seviye	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$6p_{1/2}$	989618380,8	1014043299	1038853878
	1012694979,20[a]	1039013392,20[a]	1065860505,20[a]
$6p_{3/2}$	990123609,1	1014564486	1039391226
	1013952747,60[a]	1040338159,90[a]	1067255431,70[a]
$6f_{5/2}$	990357469,8	1014807173	1039642929
	1014290768,70[a]	1040692010,50[a]	1067625687,70[a]
$6f_{7/2}$	990508431,9	1014964777	1039807386
	1014452140,30[a]	1040860755,70[a]	1067802062,20[a]
$7p_{1/2}$	996769040,7	1021359527	1046337717
	1020115459,40[a]	1046618796,30[a]	1073654069,80[a]
$7p_{3/2}$	997048504,7	1021647260	1046633799
	1020901005,70[a]	1047446002,60[a]	1074524885,40[a]
$7f_{5/2}$	997183230,4	1021786817	1046778276
	1021113492,80[a]	1047668431,10[a]	1074757616,50[a]
$7f_{7/2}$	997273597,8	1021881054	1046876500
	1021215143,20[a]	1047774727,00[a]	1074868719,00[a]
$8p_{1/2}$	1001366070	1026062114	1051147132
	1024874168,30[b]	1051494472,80[b]	1078648670,60[b]
$8p_{3/2}$	1001528529	1026229055	1051318585
	1025396903,00[b]	1052044830,90[b]	1079227936,80[b]
$8f_{5/2}$	1001610233	1026313528	1051405871
	1025538991,00[b]	1052193560,40[b]	1079383548,40[b]
$8f_{7/2}$	1001667013	1026372661	1051467421
	1025607069,10[b]	1052264749,20[b]	1079457955,80[b]
$9p_{1/2}$	1004500952	1029268650	1054426173
	1028105733,80[b]	1054804599,70[b]	1082038624,90[b]
$9p_{3/2}$	1004594361	1029364405	1054524281
	1028470846,10[b]	1055188949,80[b]	1082443102,80[b]
$9f_{5/2}$	1004644041	1029415643	1054577095
	1028570466,40[b]	1055293222,30[b]	1082552195,90[b]
$9f_{7/2}$	1004680067	1029453088	1054615994
	1028618254,80[b]	1055343193,80[b]	1082604426,10[b]

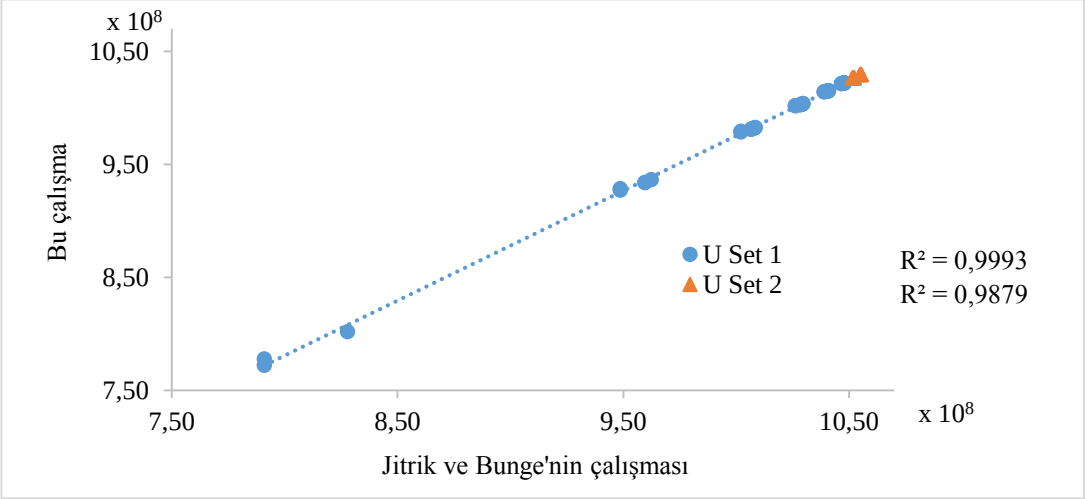
[a,b] Jitrik ve Bunge 2004, [c] Yerokhin ve Shabev, 2005 (Bu değerler Rydberg biriminden cm^{-1} birimine çevrilmiştir.), [d,e] Lupton ve ark., 1994, [f,g] Stöhlker ve ark., 1993. [h,ı] Briand ve ark., 1990, [i,j] Stöhlker ve ark., 2000. ([d,e,f,g,h,ı,i,j] kaynaklarından alınan değerler eV biriminden cm^{-1} birimine çevrilmiştir.)

Tablolar incelendiğinde taban halden sonra gelen ilk üç seviye ($2s_{1/2}$, $2p_{1/2}$ ve $2p_{3/2}$) için yüzde hata hesabı Pa^{+90} iyonu için 1,602-1,243; 2,264-1,979 ve 2,967-2,694, U^{+91} iyonu için 1,694-1,316; 2,384-2,084 ve 2,650-2,726 ve Np^{+92} iyonunun 1,791-1,402; 2,510-2,203 ve 3,290-2,996 olarak bulunmuştur. Bu hata paylarının çalışma dahilindeki en yüksek seviye olan 9g ve 9f seviyelerinde de %2 civarında olduğu görülmektedir. Yüzde hata değerlerinin makul değerlerde olduğu dikkat çekmektedir.

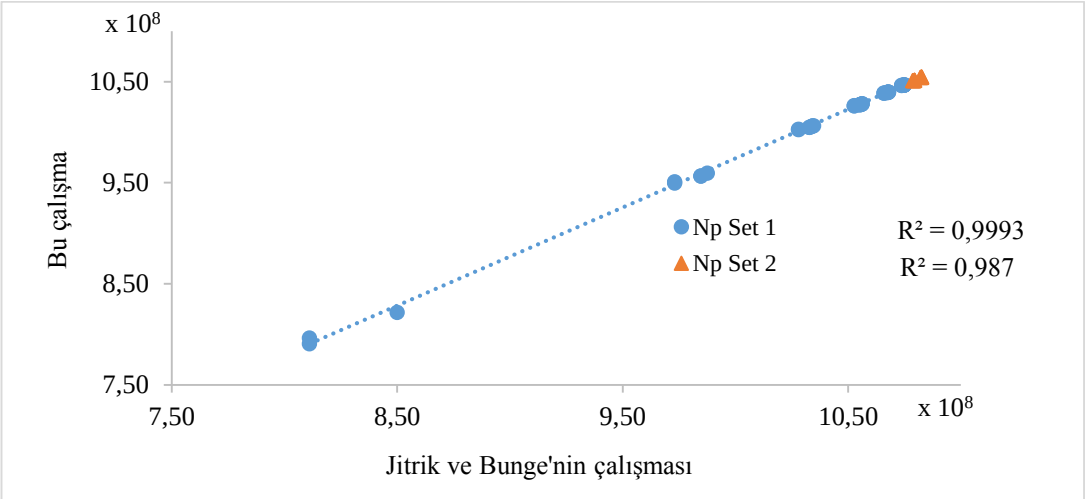
Seviyeleri toplu halde değerlendirebilmek ve yorumlayabilmek için, MCHF hesaplamaları ile Jitrik ve Bunge'nin (Jitrik ve Bunge, 2004) çalışma sonuçları arasında grafik çizilerek R^2 değerleri hesaplanmıştır. Grafik 1, 2 ve 3 sırasıyla Pa^{90+}, U^{91+} ve Np^{92+} iyonlarının hesaplanan tüm seviye enerjileri ile Jitrik ve Bungenin iki set halindeki değerleri arasında çizilmiştir.



Şekil 3.1. Pa^{90+}'nın seviye enerjilerinin (cm^{-1}) Jitrik ve Bunge'nin (Jitrik ve Bunge, 2004) çalışması ile karşılaştırılması



Şekil 3.2. U^{91+}'nın seviye enerjilerinin (cm^{-1}) Jitrik ve Bunge'nin (Jitrik ve Bunge, 2004) çalışması ile karşılaştırılması



Şekil 3.3 Np^{92+}'nın seviye enerjilerinin (cm^{-1}) Jitrik ve Bunge'nin (Jitrik ve Bunge, 2004) çalışması ile karşılaştırılması

Grafiklere bakıldığında Pa^{90+}iyonunun R^2 değeri set 1 için 0,9994, set 2 için 0,9888; U^{91+} iyonunun R^2 değeri set 1 için 0,9993, set 2 için 0,9879 ve Np^{92+} iyonunun R^2 değeri set 1 0,9993 ve set 2 için 0,987 olarak hesaplanmıştır.

Yüzde hata oranları ve R^2 değerleri gözönüne alındığında seviye enerjileri için elde edilen sonuçların oldukça kullanışlı değerler olduğu görülmektedir. Enerjiler için mevcut en geniş çalışma olan Jitrik ve Bunge'nin çalışma sonuçlarına dikkat edildiğinde nl_j seviyeleriyle $n(l+1)_j$ seviyelerinin aynı değerlerde olduğu görülür. Birbirine çok yakın değer alması beklenen bu seviyelerin aynı değeri alması hesaplamanın yeterince hassas olmadığının kuvvetli bir delilidir. Bu sebeple MCHF sonuçlarının karşılaştırma değerlerinden daha güvenilir olduğu düşünülmektedir. Ayrıca $8g_{7/2}$, $8g_{9/2}$, $9g_{7/2}$ ve $9g_{9/2}$ seviyelerine ait değerler için herhangi bir karşılaştırma değeri yoktur. Bu seviyeler ilk defa sunulmaları açısından oldukça önemlidir.

3.2 Hidrojen Benzeri Pa, U ve Np'nin E1, E2, M1 ve M2 Geçişleri

Bir önceki kısımda hidrojen benzeri Pa, U ve Np iyonlarının enerji değerleri tablolar halinde verilen *nl* (*n*=1-9 ve *l*=0-4) seviyeleri arasındaki izinli (elektirik dipol, E1) ve yasaklı (elektrik kuadrupol; E2, manyetik dipol; M1 ve manyetik kuadrupol, M2) geçişleri de incelenmiştir. Bu geçişlere ait dalga boyları (Å), ağılıklı salınıcı şiddetleri (*gf*) ve geçiş olasılıkları (A_{ki}) hesaplanmıştır. Tablo 3.3., Tablo 3.4., Tablo 3.5. ve Tablo 3.6'da Pa^{90+}, U^{91+} ve Np^{92+} iyonlarının sırasıyla elektrik dipol (E1), elektrik kuadrupol (E2), manyetik dipol (M1) ve manyetik kuadrupol (M2) geçişlerine ait parametreler sunulmaktadır. Bu tablolarda ilk sütunda geçişin gerçekteştiği seviyeler, diğer sütunlarda ise iyonların artan atom numarasına göre dalga boyları (λ, Å), logaritmik ağırlıklı salınıcı şiddetleri (log *gf*) ve geçiş olasılıkları (A_{ki}, (s^{-1})) bulunmaktadır. Karşılaştırma değerlerinden birkaçı salınıcı şiddetidir (*f*-değeri) ve logaritmik olarak hesaplanmamıştır. Bu değerler log *gf* değerine çevrilip tabloların alt kısımlarında belirtilmiştir. Ulaşılabilir kaynaklardaki karşılaştırma değerleri, hesaplanan değerlerin hemen altına yerleştirilmiş ve alındıkları kaynak üst indis harfler ile belirtilmiştir.

Geçişler için karşılaştırma değerlerine ait en geniş veri Jitrik ve Bunge'nin (Jitrik ve Bunge, 2004) çalışmasıdır. Geçişler için deneysel bir çalışma bulunmamaktadır. Enerji değerlerinde olduğu gibi geçiş parametrelerinde de atom numarası arttıkça ve geçişlerin gerçekleştiği seviyeler büyüdükçe hata değerinde küçük bir miktar artış gözlenmektedir. Bu konuda gerçekleştirilmiş en geniş çalışma olan Jitrik ve Bunge'nin enerji değerlerindeki çakışmadan dolayı MCHF yönteminin daha hassas ve doğru sonuçlar verdiği düşünülmektedir. 8g ve 9g geçişleri için ise deneysel ve teorik karşılaştırma değeri yoktur. Bu geçişlere ait veriler ilk defa bu çalışma ile sunulmaktadır.

Tablo 3.3. Hidrojen benzeri protaktinyum, uranyum ve neptünyumun elektrik dipol (E1) geçiş parametreleri

Geçişler		Dalga Boyu (Å)			log(*gf*)			$A_{ki}(s^{-1})$		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$1s_{1/2}$	$2p_{3/2}$	0,13	0,12	0,12	-0,4618	-0,4672	-0,4726	3,52(16)	3,66(16)	3,79(16)
		0,12405183[a]	0,12080714[a]	0,11766227[a]	-0,15759[a]	-0,16333[a]	-0,16922[a]	3,77(16)[a]	3,92(16)[a]	4,08(16)[a]
			0,1214309[c]			-1,05888[c]			3,95(16)[c]	
			0,125[e]			-0,77728[e]			3,58(16)[e]	
									3,69(16)[f]	
									3,93(16)[f]	
									3,92(16)[d]	
$1s_{1/2}$	$3p_{3/2}$	0,11	0,11	0,10	-1,3557	-1,3673	-1,3792	6,10(15)	6,24(15)	6,38(15)
		0,10695042[a]	0,10421268[a]	0,10155914[a]	-0,82877[a]	-0,83311[a]	-0,83757[a]	1,08(16)[a]	1,13(16)[a]	1,18(16)[a]
			0,1046817[c]			-1,72839[c]			1,14(16)[c]	
$1s_{1/2}$	$4p_{3/2}$	0,10	0,10	0,10	-2,1452	-2,1731	-2,2022	1,09(15)	1,08(15)	1,06(15)
		0,10193101[a]	0,09933626[a]	0,09682137[a]	-1,25476[a]	-1,25879[a]	-1,26292[a]	4,46(15)[a]	4,66(15)[a]	4,86(15)[a]
			0,0997636[c]			-2,15366[c]			4,70(15)[c]	
$1s_{1/2}$	$5p_{3/2}$	0,10	0,10	0,10	-3,3406	-3,4568	-3,5927	7,29(13)	5,86(13)	4,50(13)
		0,09976134[a]	0,0972279[a]	0,09477247[a]	-1,57034[a]	-1,57427[a]	-1,5783[a]	2,25(15)[a]	2,35(15)[a]	2,45(15)[a]
$1s_{1/2}$	$6p_{3/2}$	0,10	0,10	0,10	-3,3614	-3,2523	-3,1546	7,11(13)	9,60(13)	1,26(14)
		0,09862393[a]	0,09612259[a]	0,09369828[a]	-1,82212[a]	-1,82603[a]	-1,83003[a]	1,29(15)[a]	1,35(15)[a]	1,40(15)[a]
$1s_{1/2}$	$7p_{3/2}$	0,10	0,10	0,10	-2,4669	-2,4224	-2,3797	5,66(14)	6,58(14)	7,62(14)
		0,09795269[a]	0,09547032[a]	0,09306439[a]	-2,03204[a]	-2,03594[a]	-2,03994[a]	8,07(14)[a]	8,42(14)[a]	8,78(14)[a]
$1s_{1/2}$	$8p_{3/2}$	0,10	0,10	0,10	-1,9462	-1,9167	-1,8878	1,89(15)	2,13(15)	2,39(15)
		0,09752321[b]	0,09505298[b]	0,09265883[b]	-2,21223[b]	-2,21614[b]	-2,22014[b]	5,38(14)[b]	5,61(14)[b]	5,85(14)[b]

[a,b] Jitrik ve Bunge, 2004, [c] Pal'chikov, 1998, [d] Surzhykov ve ark., 2002, [e] Nahar, 2011, [f] Chen ve ark., 2014.

Tablo 3.3. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			$A_{ki}(s^{-1})$		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$1s_{1/2}$	$9p_{3/2}$	0,10	0,10	0,09	-1,3417	-1,3199	-1,2985	7,66(15)	8,46(15)	9,33(15)
		0,09723173[b]	0,09476976[b]	0,09238361[b]	-2,37018[b]	-2,37409[b]	-2,37811[b]	3,76(14)[b]	3,92(14)[b]	4,09(14)[b]
$1s_{1/2}$	$2p_{1/2}$	0,13	0,13	0,13	-0,7579	-0,7639	-0,7700	3,31(16)	3,42(16)	3,54(16)
		0,12967045[a]	0,12643163[a]	0,12329275[a]	-0,64232[a]	-0,64491[a]	-0,64757[a]	4,52(16)[a]	4,73(16)[a]	4,94(16)[a]
			0,1271193[c]			-0,94123[c]			4,73(16)[c]	
			0,129[e]			-1,07520[e]			3,34(16)[e]	
$1s_{1/2}$	$3p_{1/2}$	0,11	0,11	0,11	-1,9413	-1,9644	-1,9884	3,12(15)	3,11(15)	3,09(15)
		0,10815572[a]	0,10541961[a]	0,10276773[a]	-1,44891[a]	-1,45426[a]	-1,45977[a]	1,01(16)[a]	1,05(16)[a]	1,10(16)[a]
			0,1059004[c]			-1,75129[c]			1,05(16)[c]	
$1s_{1/2}$	$4p_{1/2}$	0,10	0,10	0,10	-3,1268	-3,2056	-3,2928	2,27(14)	1,99(14)	1,71(14)
		0,10238413[a]	0,09978987[a]	0,09727548[a]	-1,92063[a]	-1,92711[a]	-1,93378[a]	3,82(15)[a]	3,96(15)[a]	4,11(15)[a]
			0,1002214[c]			-2,22402[c]			3,96(15)[c]	
$1s_{1/2}$	$5p_{1/2}$	0,10	0,10	0,10	-4,0643	-3,8828	-3,7318	2,75(13)	4,38(13)	6,51(13)
		0,09998035[a]	0,09744709[a]	0,09499182[a]	-2,25824[a]	-2,26531[a]	-2,2726[a]	1,84(15)[a]	1,91(15)[a]	1,97(15)[a]
$1s_{1/2}$	$6p_{1/2}$	0,10	0,10	0,10	-2,9570	-2,9035	-2,8529	3,61(14)	4,28(14)	5,05(14)
		0,09874642[a]	0,09624515[a]	0,09382091[a]	-2,52274[a]	-2,53018[a]	-2,53785[a]	1,03(15)[a]	1,06(15)[a]	1,10(15)[a]
$1s_{1/2}$	$7p_{1/2}$	0,10	0,10	0,10	-2,5175	-2,4832	-2,4502	1,01(15)	1,14(15)	1,30(15)
		0,09802812[a]	0,09554577[a]	0,09313987[a]	-2,74084[a]	-2,74853[a]	-2,75646[a]	6,30(14)[a]	6,52(14)[a]	6,74(14)[a]
$1s_{1/2}$	$8p_{1/2}$	0,10	0,10	0,10	-2,1477	-2,1218	-2,0965	2,38(15)	2,65(15)	2,95(15)
		0,09757295[b]	0,09510273[b]	0,09270859[b]	-2,92672[b]	-2,93459[b]	-2,9427[b]	4,15(14)[b]	4,29(14)[b]	4,43(14)[b]
$1s_{1/2}$	$9p_{1/2}$	0,10	0,10	0,09	-1,6432	-1,6228	-1,6026	7,65(15)	8,42(15)	9,26(15)
		0,09726626[b]	0,09480429[b]	0,09241814[b]	-3,08882[b]	-3,09683[b]	-3,10508[b]	2,87(14)[b]	2,97(14)[b]	3,07(14)[b]

Tablo 3.3. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			$A_{ki}(s^{-1})$		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+}+ (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+}+ (Z=92)	Np^{92+} (Z=93)
$2s_{1/2}$	$2p_{3/2}$	4,28	4,10	3,94	-0,5449	-0,5370	-0,5292	2,60(13)	2,87(13)	3,18(13)
		2,86295501[a]	2,71559504[a]	2,57649453[a]	-0,12208[a]	-0,11131[a]	-0,10064[a]	7,68(13)[a]	8,75(13)[a]	9,96(13)[a]
$2s_{1/2}$	$3p_{3/2}$	0,66	0,64	0,62	-0,5164	-0,5224	-0,5284	1,18(15)	1,22(15)	1,27(15)
		0,61039999[a]	0,59299717[a]	0,57613571[a]	-0,28455[a]	-0,29633[a]	-0,30853[a]	1,16(15)[a]	1,20(15)[a]	1,23(15)[a]
						-2,53695[e]			1,20(15)[e]	
$2s_{1/2}$	$4p_{3/2}$	0,50	0,49	0,48	-1,2280	-1,2373	-1,2467	3,89(14)	4,00(14)	4,11(14)
		0,4764854[a]	0,46351993[a]	0,45095402[a]	-0,80676[a]	-0,81541[a]	-0,82439[a]	5,73(14)[a]	5,94(14)[a]	6,14(14)[a]
$2s_{1/2}$	$5p_{3/2}$	0,46	0,44	0,43	-1,8475	-1,8652	-1,8835	1,14(14)	1,15(14)	1,16(14)
		0,4325136[a]	0,4209285[a]	0,40969992[a]	-1,16384[a]	-1,1715[a]	-1,17945[a]	3,06(14)[a]	3,17(14)[a]	3,29(14)[a]
$2s_{1/2}$	$6p_{3/2}$	0,43	0,42	0,41	-2,6388	-2,6845	-2,7331	2,05(13)	1,94(13)	1,82(13)
		0,41191756[a]	0,40096736[a]	0,39035399[a]	-1,43715[a]	-1,44436[a]	-1,45185[a]	1,80(14)[a]	1,86(14)[a]	1,93(14)[a]
$2s_{1/2}$	$7p_{3/2}$	0,42	0,41	0,40	-4,4014	-4,0937	-3,8663	3,76(11)	8,01(11)	1,42(12)
		0,40045607[a]	0,3898564[a]	0,37958273[a]	-1,65966[a]	-1,66663[a]	-1,67388[a]	1,14(14)[a]	1,18(14)[a]	1,23(14)[a]
$2s_{1/2}$	$8p_{3/2}$	0,41	0,40	0,39	-2,3761	-2,3345	-2,2946	4,13(13)	4,77(13)	5,49(13)
		0,39337373[b]	0,38298985[b]	0,37292528[b]	-1,847788[b]	-1,85471[b]	-1,86181[b]	7,65(13)[b]	7,94(13)[b]	8,24(13)[b]
$2s_{1/2}$	$9p_{3/2}$	0,41	0,40	0,39	-1,4962	-1,4740	-1,4523	3,21(14)	3,55(14)	3,92(14)
		0,38867386[b]	0,37843289[b]	0,36850682[b]	-2,01125[b]	-2,01799[b]	-2,025[b]	5,38(13)[b]	5,59(13)[b]	5,80(13)[b]
$2s_{1/2}$	$2p_{1/2}$	19,60	18,33	17,15	-1,5503	-1,5317	-1,5134	2,45(11)	2,92(11)	3,48(11)
$2s_{1/2}$	$3p_{1/2}$	0,69	0,67	0,65	-0,6392	-0,6414	-0,6436	1,63(15)	1,70(15)	1,78(15)
		0,65186043	0,63432128	0,62	-0,5510	-0,5514	-0,5518	2,21(15)	2,33(15)	2,46(15)
$2s_{1/2}$	$4p_{1/2}$	0,51	0,50	0,49	-1,4989	-1,5071	-1,5155	4,07(14)	4,19(14)	4,32(14)
		0,48655138[a]	0,47356468[a]	0,46097695[a]	-1,20192[a]	-1,20301[a]	-1,20413[a]	8,85(14)[a]	9,32(14)[a]	9,81(14)[a]

Tablo 3.3. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			$A_{ki}(s^{-1})$		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$2s_{1/2}$	$5p_{1/2}$	0,46	0,45	0,44	-2,2127	-2,2316	-2,2510	9,78(13)	9,83(13)	9,87(13)
		0,43666056[a]	0,42506768[a]	0,41383109[a]	-1,60475[a]	-1,60622[a]	-1,60773[a]	4,35(14)[a]	4,57(14)[a]	4,81(14)[a]
$2s_{1/2}$	$6p_{1/2}$	0,43	0,42	0,41	-3,1760	-3,2358	-3,3001	1,18(13)	1,08(13)	9,81(12)
		0,41406281[a]	0,40310863[a]	0,39249117[a]	-1,90099[a]	-1,9027[a]	-1,90445[a]	2,44(14)[a]	2,57(14)[a]	2,70(14)[a]
$2s_{1/2}$	$7p_{1/2}$	0,42	0,41	0,40	-3,8449	-3,7205	-3,6117	2,70(12)	3,77(12)	5,09(12)
		0,40171979[a]	0,39111773[a]	0,38084159[a]	-2,13706[a]	-2,13894[a]	-2,14087[a]	1,51(14)[a]	1,58(14)[a]	1,66(14)[a]
$2s_{1/2}$	$8p_{1/2}$	0,41	0,40	0,39	-2,5814	-2,5458	-2,5115	5,14(13)	5,86(13)	6,66(13)
		0,39418429[b]	0,38379882[b]	0,37373262[b]	-2,33414[b]	-2,33615[b]	-2,33821[b]	9,94(13)[b]	1,04(14)[b]	1,10(14)[b]
$2s_{1/2}$	$9p_{1/2}$	0,41	0,40	0,39	-1,8107	-1,7898	-1,7694	3,11(14)	3,43(14)	3,77(14)
		0,38922621[b]	0,37898412[b]	0,36905691[b]	-2,50372[b]	-2,50583[b]	-2,50799[b]	6,90(13)[b]	7,25(13)[b]	7,60(13)[b]
$3d_{3/2}$	$4f_{5/2}$	2,12	2,07	2,02	0,5782	0,5774	0,5767	9,36(14)	9,80(14)	1,02(15)
		2,11936528[a]	2,07039613[a]	2,02299707[a]	0,75132[a]	0,75051[a]	0,74968[a]	9,31(14)[a]	9,73(14)[a]	1,02(15)[a]
$3d_{3/2}$	$5f_{5/2}$	1,47	1,44	1,41	-0,2239	-0,2245	-0,2251	3,07(14)	3,21(14)	3,35(14)
		1,47135868[a]	1,43786904[a]	1,40545252[a]	-0,03131[a]	-0,03143[a]	-0,03156[a]	3,19(14)[a]	3,33(14)[a]	3,49(14)[a]
$3d_{3/2}$	$6f_{5/2}$	1,26	1,23	1,21	-0,7106	-0,7118	-0,7130	1,36(14)	1,42(14)	1,48(14)
		1,26138332[a]	1,23280484[a]	1,20514209[a]	-0,48552[a]	-0,48543[a]	-0,48533[a]	1,52(14)[a]	1,59(14)[a]	1,67(14)[a]
$3d_{3/2}$	$7f_{5/2}$	1,16	1,14	1,11	-1,0842	-1,0867	-1,0892	6,79(13)	7,07(13)	7,35(13)
		1,16142985[a]	1,1351735[a]	1,10975848[a]	-0,80501[a]	-0,80482[a]	-0,80463[a]	8,61(13)[a]	9,01(13)[a]	9,44(13)[a]
$3d_{3/2}$	$8f_{5/2}$	1,10	1,08	1,06	-1,4379	-1,4431	-1,4484	3,33(13)	3,44(13)	3,55(13)
		1,10465179[b]	1,07971084[b]	1,05556908[b]	-1,05199[b]	-1,05175[b]	-1,05151[b]	5,39(13)[b]	5,64(13)[b]	5,91(13)[b]
$3d_{3/2}$	$9f_{5/2}$	1,07	1,04	1,02	-2,0052	-2,0226	-2,0406	9,62(12)	9,67(12)	9,71(12)
		-1,06885865[b]	1,04474593[b]	1,02140585[b]	-1,2539[b]	-1,25363[b]	-1,25336[b]	3,62(13)[b]	3,79(13)[b]	3,96(13)[b]

Tablo 3.3. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			$A_{ki}(s^{-1})$		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$3d_{3/2}$	$2p_{3/2}$	0,78	0,76	0,74	-0,5907	-0,5916	-0,5925	7,11(14)	7,42(14)	7,74(14)
		0,77580689[a]	0,75866475[a]	0,74207211[a]	-0,5875[a]	-0,58826[a]	-0,58902[a]	7,16(14)[a]	7,48(14)[a]	7,80(14)[a]
						1,2573(-3)[e]			7,48(14)[e]	
$3d_{3/2}$	$3p_{3/2}$	609,39	568,99	531,64	-2,8275	-2,8080	-2,7887	6,68(6)	8,01(6)	9,60(6)
$3d_{3/2}$	$4p_{3/2}$	2,16	2,11	2,07	-2,2865	-2,2915	-2,2967	1,84(12)	1,91(12)	1,97(12)
		2,17188187[a]	2,12289057[a]	2,07546909[a]	-2,13103[a]	-2,13095[a]	-2,13087[a]	2,61(12)[a]	2,74(12)[a]	2,86(12)[a]
$3d_{3/2}$	$5p_{3/2}$	1,48	1,45	1,41	-3,3810	-3,4020	-3,4238	3,16(11)	3,15(11)	3,14(11)
		1,48412865[a]	1,45063832[a]	1,4182211[a]	-2,8234[a]	-2,82323[a]	-2,82306[a]	1,14(12)[a]	1,19(12)[a]	1,25(12)[a]
$3d_{3/2}$	$6p_{3/2}$	1,26	1,24	1,21	-5,6218	-6,0174	-6,7827	2,49(9)	1,05(9)	1,88(8)
		1,26678456[a]	1,23820625[a]	1,21054367[a]	-3,24043[a]	-3,24022[a]	-3,24001[a]	5,97(11)[a]	6,26(11)[a]	6,55(11)[a]
$3d_{3/2}$	$7p_{3/2}$	1,16	1,14	1,11	-3,9538	-3,9006	-3,8497	1,37(11)	1,62(11)	1,91(11)
		1,16430322[a]	1,13804701[a]	1,11263214[a]	-3,54034[a]	-3,5401[a]	-3,53987[a]	3,55(11)[a]	3,71(11)[a]	3,89(11)[a]
$3d_{3/2}$	$8p_{3/2}$	1,11	1,08	1,06	-3,2754	-3,2444	-3,2141	7,24(11)	8,14(11)	9,13(11)
		1,10638835[b]	1,08144748[b]	1,0573058[b]	-3,77559[b]	-3,77535[b]	-3,77511[b]	2,28(11)[b]	2,39(11)[b]	2,50(11)[b]
$3d_{3/2}$	$9p_{3/2}$	1,07	1,05	1,02	-2,6488	-2,6260	-2,6036	3,27(12)	3,61(12)	3,98(12)
		1,06999799[b]	1,0458853[b]	1,02254526[b]	-3,96988[b]	-3,96964[b]	-3,9694[b]	1,56(11)[b]	1,63(11)[b]	1,71(11)[b]
$3d_{3/2}$	$2p_{1/2}$	0,64	0,62	0,60	0,0175	0,0145	0,0115	4,30(15)	4,50(15)	4,72(15)
		0,61039999[a]	0,59299717[a]	0,57613571[a]	0,29602[a]	0,29147[a]	0,28678[a]	4,42(15)[a]	4,64(15)[a]	4,86(15)[a]
						1,0255(-2)[e]			4,64(15)[e]	
$3d_{3/2}$	$3p_{1/2}$	15,58	14,98	14,42	-0,5132	-0,5059	-0,4988	2,11(12)	2,32(12)	2,54(12)
		9,59699342[a]	9,10245245[a]	8,63570469[a]	-0,02756[a]	-0,01545[a]	-0,0034[a]	8,50(12)[a]	9,71(12)[a]	1,11(13)[a]
$3d_{3/2}$	$4p_{1/2}$	2,28	2,23	2,18	-1,2122	-1,2115	-1,2110	3,95(13)	4,14(13)	4,33(13)
		2,39801612[a]	2,3513074[a]	2,30625355[a]	-1,19058[a]	-1,17943[a]	-1,16817[a]	7,48(13)[a]	7,98(13)[a]	8,51(13)[a]

Tablo 3.3. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			$A_{ki}(s^{-1})$		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$3d_{3/2}$	$5p_{1/2}$	1,50	1,47	1,44	-2,2839	-2,2939	-2,3042	7,68(12)	7,85(12)	8,02(12)
		1,53412267[a]	1,50101047[a]	1,46898387[a]	-1,96687[a]	-1,95845[a]	-1,95002[a]	3,06(13)[a]	3,26(13)[a]	3,47(13)[a]
$3d_{3/2}$	$6p_{1/2}$	1,27	1,24	1,22	-3,5710	-3,6334	-3,7019	5,53(11)	5,01(11)	4,48(11)
		1,28729531[a]	1,25885571[a]	1,23133625[a]	-2,40652[a]	-2,39884[a]	-2,39118[a]	1,58(13)[a]	1,68(13)[a]	1,79(13)[a]
$3d_{3/2}$	$7p_{1/2}$	1,17	1,14	1,12	-3,6136	-3,5395	-3,4702	5,96(11)	7,40(11)	9,08(11)
		1,17505039[a]	1,1488624[a]	1,12351787[a]	-2,71636[a]	-2,70903[a]	-2,70173[a]	9,28(12)[a]	9,88(12)[a]	1,05(13)[a]
$3d_{3/2}$	$8p_{1/2}$	1,11	1,08	1,06	-2,6930	-2,6599	-2,6276	5,51(12)	6,23(12)	7,02(12)
		1,11282434[b]	1,08792262[b]	1,0638213[b]	-2,95714[b]	-2,95001[b]	-2,94292[b]	5,95(12)[b]	6,32(12)[b]	6,72(12)[b]
$3d_{3/2}$	$9p_{1/2}$	1,07	1,05	1,02	-2,0319	-2,0089	-1,9862	2,70(13)	2,99(13)	3,29(13)
		1,07419454[b]	1,05010658[b]	1,02679204[b]	-3,15497[b]	-3,14798[b]	-3,14102[b]	4,05(12)[b]	4,30(12)[b]	4,57(12)[b]
$3d_{5/2}$	$4f_{7/2}$	2,22	2,17	2,12	0,7491	0,7488	0,7484	9,50(14)	9,92(14)	1,04(15)
		2,21996513[a]	2,17101021[a]	2,12362564[a]	0,86982[a]	0,86938[a]	0,86893[a]	9,40(14)[a]	9,82(14)[a]	1,03(15)[a]
$3d_{5/2}$	$5f_{7/2}$	1,52	1,49	1,46	-0,0656	-0,0660	-0,0665	3,08(14)	3,22(14)	3,36(14)
		1,52523296[a]	1,49176771[a]	1,45937593[a]	0,0651[a]	0,06484[a]	0,06458[a]	3,12(14)[a]	3,26(14)[a]	3,41(14)[a]
$3d_{5/2}$	$6f_{7/2}$	1,30	1,27	1,25	-0,5457	-0,5466	-0,5474	1,40(14)	1,46(14)	1,52(14)
		1,30275518[a]	1,2741987[a]	1,24655825[a]	-0,39756[a]	-0,39779[a]	-0,39803[a]	1,48(14)[a]	1,54(14)[a]	1,61(14)[a]
$3d_{5/2}$	$7f_{7/2}$	1,20	1,17	1,15	-0,8980	-0,8996	-0,9011	7,36(13)	7,67(13)	7,98(13)
		1,19726932[a]	1,17103332[a]	1,14563892[a]	-0,7214[a]	-0,72165[a]	-0,72189[a]	8,29(13)[a]	8,66(13)[a]	9,04(13)[a]
$3d_{5/2}$	$8f_{7/2}$	1,14	1,11	1,09	-1,2001	-1,2029	-1,2058	4,07(13)	4,22(13)	4,38(13)
		1,13745816[b]	1,11253653[b]	1,08841436[b]	-0,97097[b]	-0,97122[b]	-0,97147[b]	5,17(13)[b]	5,40(13)[b]	5,64(13)[b]
$3d_{5/2}$	$9f_{7/2}$	1,10	1,08	1,05	-1,5546	-1,5614	-1,5683	1,92(13)	1,98(13)	2,04(13)
		1,0997893[b]	1,07569524[b]	1,05237409[b]	-1,17453[b]	-1,17479[b]	-1,17506[b]	3,46(13)[b]	3,61(13)[b]	3,77(13)[b]

Tablo 3.3. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			$A_{ki}(s^{-1})$		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$3d_{5/2}$	$4f_{5/2}$	2,25	2,20	2,15	-0,5514	-0,5517	-0,5521	6,19(13)	6,46(13)	6,74(13)
		2,24694273[a]	2,19799319[a]	2,15061406[a]	-0,55401[a]	-0,55441[a]	-0,55481[a]	6,15(13)[a]	6,42(13)[a]	6,70(13)[a]
$3d_{5/2}$	$5f_{5/2}$	1,53	1,50	1,47	-1,3987	-1,3999	-1,4011	1,89(13)	1,97(13)	2,06(13)
		1,53173668[a]	1,49827383[a]	1,46588449[a]	-1,38624[a]	-1,38709[a]	-1,38795[a]	1,95(13)[a]	2,03(13)[a]	2,12(13)[a]
$3d_{5/2}$	$6f_{5/2}$	1,31	1,28	1,25	-1,8967	-1,8987	-1,9008	8,28(12)	8,62(12)	8,96(12)
		1,3054997[a]	1,27694432[a]	1,24930498[a]	-1,86048[a]	-1,86159[a]	-1,86271[a]	8,99(12)[a]	9,38(12)[a]	9,77(12)[a]
$3d_{5/2}$	$7f_{5/2}$	1,20	1,17	1,15	-2,2634	-2,2664	-2,2695	4,22(12)	4,38(12)	4,55(12)
		1,19872821[a]	1,17249279[a]	1,14709899[a]	-2,19071[a]	-2,19197[a]	-2,19325[a]	4,99(12)[a]	5,20(12)[a]	5,41(12)[a]
$3d_{5/2}$	$8f_{5/2}$	1,14	1,11	1,09	-2,5811	-2,5858	-2,5906	2,25(12)	2,33(12)	2,41(12)
		1,13833964[b]	1,11341836[b]	1,08929654[b]	-2,44423[b]	-2,4456[b]	-2,44699[b]	3,08(12)[b]	3,21(12)[b]	3,35(12)[b]
$3d_{5/2}$	$9f_{5/2}$	1,10	1,08	1,05	-2,9632	-2,9729	-2,9827	1,00(12)	1,02(12)	1,04(12)
		1,10036762[b]	1,07627378[b]	1,05295285[b]	-2,65046[b]	-2,65191[b]	-2,65337[b]	2,05(12)[b]	2,14(12)[b]	2,23(12)[b]
$3d_{5/2}$	$2p_{3/2}$	0,76	0,74	0,73	0,3592	0,3583	0,3573	4,40(15)	4,59(15)	4,80(15)
		0,76001081[a]	0,74286249[a]	0,72626359[a]	0,53001[a]	0,52897[a]	0,52792[a]	4,35(15)[a]	4,54(15)[a]	4,74(15)[a]
						7,6352(-3)[e]			4,54(15)[e]	
$3d_{5/2}$	$3p_{3/2}$	40,05	38,34	36,71	-0,6656	-0,6564	-0,6473	1,50(11)	1,67(11)	1,86(11)
		37,32707188[a]	35,66474239[a]	34,09174475[a]	-0,46641[a]	-0,45661[a]	-0,4469[a]	1,82(11)[a]	2,04(11)[a]	2,28(11)[a]
$3d_{5/2}$	$4p_{3/2}$	2,30	2,25	2,20	-1,0536	-1,0516	-1,0497	2,80(13)	2,93(13)	3,08(13)
		2,30606038[a]	2,25725001[a]	2,21001228[a]	-1,15818[a]	-1,1541[a]	-1,15[a]	3,27(13)[a]	3,44(13)[a]	3,63(13)[a]
$3d_{5/2}$	$5p_{3/2}$	1,54	1,51	1,48	-1,9048	-1,9067	-1,9088	8,74(12)	9,09(12)	9,45(12)
		1,54558113[a]	1,5121437[a]	1,47978015[a]	-1,87348[a]	-1,86992[a]	-1,86634[a]	1,40(13)[a]	1,48(13)[a]	1,55(13)[a]
$3d_{5/2}$	$6p_{3/2}$	1,31	1,28	1,25	-2,5714	-2,5809	-2,5907	2,61(12)	2,67(12)	2,73(12)
		1,31128623[a]	1,28274035[a]	1,25511065[a]	-2,29674[a]	-2,29332[a]	-2,28987[a]	7,35(12)[a]	7,74(12)[a]	8,15(12)[a]

Tablo 3.3. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			$A_{ki}(s^{-1})$		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$3d_{5/2}$	$7p_{3/2}$	1,20	1,17	1,15	-3,4196	-3,4553	-3,4930	4,40(11)	4,24(11)	4,06(11)
		1,20178934[a]	1,1755586[a]	1,15016954[a]	-2,59927[a]	-2,59591[a]	-2,59253[a]	4,36(12)[a]	4,59(12)[a]	4,83(12)[a]
$3d_{5/2}$	$8p_{3/2}$	1,14	1,11	1,09	-4,3715	-4,2412	-4,1264	5,46(10)	7,71(10)	1,05(11)
		1,14018382[b]	1,11526522[b]	1,09114611[b]	-2,8359[b]	-2,83258[b]	-2,82924[b]	2,81(12)[b]	2,96(12)[b]	3,11(12)[b]
$3d_{5/2}$	$9p_{3/2}$	1,10	1,08	1,05	-2,6836	-2,6528	-2,6227	2,85(12)	3,20(12)	3,58(12)
		1,10157515[b]	1,07748299[b]	1,05416377[b]	-3,03101[b]	-3,02771[b]	-3,0244[b]	1,92(12)[b]	2,02(12)[b]	2,13(12)[b]
$3s_{1/2}$	$2p_{3/2}$	0,81	0,79	0,77	-1,0631	-1,0621	-1,0612	4,41(14)	4,62(14)	4,83(14)
		0,84403766[a]	0,82764688[a]	0,81183353[a]	-1,07765[a]	-1,06786[a]	-1,058[a]	7,83(14)[a]	8,33(14)[a]	8,86(14)[a]
						1,4006(-3)[e]			8,33(14)[e]	
$3s_{1/2}$	$3p_{3/2}$	18,57	17,92	17,29	-0,3986	-0,3930	-0,3875	1,93(12)	2,10(12)	2,28(12)
		9,59699342[a]	9,10245245[a]	8,63570469[a]	0,14456[a]	0,15565[a]	0,16666[a]	1,26(13)[a]	1,44(13)[a]	1,64(13)[a]
$3s_{1/2}$	$4p_{3/2}$	1,94	1,90	1,85	-0,4465	-0,4507	-0,4548	1,58(14)	1,64(14)	1,70(14)
		1,7710729[a]	1,72141826[a]	1,67331224[a]	-0,32145[a]	-0,33705[a]	-0,35329[a]	1,27(14)[a]	1,29(14)[a]	1,32(14)[a]
$3s_{1/2}$	$5p_{3/2}$	1,37	1,34	1,31	-1,0989	-1,1050	-1,1112	7,03(13)	7,27(13)	7,51(13)
		1,28535475[a]	1,25123214[a]	1,21816481[a]	-0,79987[a]	-0,81145[a]	-0,82352[a]	8,00(13)[a]	8,22(13)[a]	8,44(13)[a]
$3s_{1/2}$	$6p_{3/2}$	1,19	1,16	1,13	-1,6335	-1,6443	-1,6552	2,75(13)	2,82(13)	2,88(13)
		1,11906955[a]	1,08994154[a]	1,06171379[a]	-1,12941[a]	-1,13959[a]	-1,15021[a]	4,94(13)[a]	5,09(13)[a]	5,23(13)[a]
$3s_{1/2}$	$7p_{3/2}$	1,10	1,07	1,05	-2,2643	-2,2881	-2,3126	7,55(12)	7,49(12)	7,42(12)
		1,03833308[a]	1,01157359[a]	0,98564122[a]	-1,38268[a]	-1,39218[a]	-1,40209[a]	3,20(13)[a]	3,30(13)[a]	3,40(13)[a]
$3s_{1/2}$	$8p_{3/2}$	1,05	1,02	1,00	-4,4852	-4,9421	-5,9634	4,99(10)	1,83(10)	1,82(9)
		0,99202308[b]	0,96660654[b]	0,94197573[b]	-1,58967[b]	-1,59879[b]	-1,6083[b]	2,18(13)[b]	2,25(13)[b]	2,32(13)[b]
$3s_{1/2}$	$9p_{3/2}$	1,01	0,99	0,97	-1,9886	-1,9605	-1,9334	1,67(13)	1,87(13)	2,08(13)
		0,96266728[b]	0,93809661[b]	0,9142856[b]	-1,76541[b]	-1,77428[b]	-1,78354[b]	1,54(13)[b]	1,59(13)[b]	1,64(13)[b]

Tablo 3.3. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			$A_{ki}(s^{-1})$		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$3s_{1/2}$	$2p_{1/2}$	0,66	0,64	0,62	-2,4567	-2,5019	-2,5503	2,70(13)	2,56(13)	2,41(13)
		0,65186043[a]	0,63432128[a]	0,61732058[a]	-1,59258[a]	-1,59346[a]	-1,59437[a]	2,01(14)[a]	2,11(14)[a]	2,23(14)[a]
						4,6725(-4)[e]			2,11(14)[e]	
$3s_{1/2}$	$3p_{1/2}$	83,63	78,89	74,47	-1,3777	-1,3626	-1,3477	2,00(10)	2,33(10)	2,70(10)
$3s_{1/2}$	$4p_{1/2}$	2,03	1,99	1,94	-0,5522	-0,5531	-0,5541	2,26(14)	2,36(14)	2,47(14)
		1,91860997[a]	1,86861468[a]	1,8201609[a]	-0,49919[a]	-0,49943[a]	-0,49968[a]	2,87(14)[a]	3,02(14)[a]	3,19(14)[a]
$3s_{1/2}$	$5p_{1/2}$	1,39	1,36	1,33	-1,3115	-1,3158	-1,3201	8,38(13)	8,70(13)	9,03(13)
		1,32268544[a]	1,28852966[a]	1,25542819[a]	-1,11159[a]	-1,1121[a]	-1,11262[a]	1,47(14)[a]	1,55(14)[a]	1,63(14)[a]
$3s_{1/2}$	$6p_{1/2}$	1,19	1,17	1,14	-1,9009	-1,9102	-1,9196	2,94(13)	3,02(13)	3,09(13)
		1,13504566[a]	1,10590999[a]	1,07767428[a]	-1,48996[a]	-1,49064[a]	-1,49134[a]	8,38(13)[a]	8,81(13)[a]	9,26(13)[a]
$3s_{1/2}$	$7p_{1/2}$	1,10	1,07	1,05	-2,5822	-2,6048	-2,6279	7,22(12)	7,18(12)	7,13(12)
		1,04687199[a]	1,02010967[a]	0,99417433[a]	-1,76826[a]	-1,76906[a]	-1,76989[a]	5,19(13)[a]	5,45(13)[a]	5,73(13)[a]
$3s_{1/2}$	$8p_{1/2}$	1,05	1,02	1,00	-5,4286	-6,8151	-5,8840	1,13(10)	4,88(8)	4,36(9)
		0,99719417[b]	0,97177619[b]	0,94714387[b]	-1,99029[b]	-1,99119[b]	-1,99212[b]	3,43(13)[b]	3,60(13)[b]	3,79(13)[b]
$3s_{1/2}$	$9p_{1/2}$	1,01	0,99	0,97	-2,3139	-2,2875	-2,2620	1,58(13)	1,75(13)	1,95(13)
		0,96606282[b]	0,94149122[b]	0,91767926[b]	-2,17597[b]	-2,17695[b]	-2,17795[b]	2,38(13)[b]	2,50(13)[b]	2,63(13)[b]
$4d_{3/2}$	$4f_{5/2}$	96,66	92,57	88,70	-0,6465	-0,6373	-0,6283	2,69(10)	2,99(10)	3,33(10)
		87,64870372[a]	83,72741872[a]	80,01727281[a]	-0,43325[a]	-0,42317[a]	-0,41319[a]	3,56(10)[a]	3,99(10)[a]	4,47(10)[a]
$4d_{3/2}$	$5f_{5/2}$	4,58	4,48	4,37	0,4990	0,4978	0,4966	1,67(14)	1,75(14)	1,82(14)
		4,56175793[a]	4,45597469[a]	4,35358381[a]	0,67407[a]	0,67277[a]	0,67144[a]	1,68(14)[a]	1,76(14)[a]	1,84(14)[a]
$4d_{3/2}$	$6f_{5/2}$	3,02	2,95	2,88	-0,1711	-0,1722	-0,1732	8,24(13)	8,60(13)	8,98(13)
		3,00887414[a]	2,94028954[a]	2,87390275[a]	0,02996[a]	0,02948[a]	0,02899[a]	8,77(13)[a]	9,17(13)[a]	9,59(13)[a]

Tablo 3.3. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			$A_{ki}(s^{-1})$		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$4d_{3/2}$	$7f_{5/2}$	2,50	2,44	2,39	-0,6106	-0,6123	-0,6142	4,36(13)	4,54(13)	4,73(13)
		2,49639604[a]	2,43981724[a]	2,3850514[a]	-0,36881[a]	-0,369[a]	-0,36919[a]	5,09(13)[a]	5,32(13)[a]	5,57(13)[a]
$4d_{3/2}$	$8f_{5/2}$	2,25	2,20	2,15	-0,9778	-0,9813	-0,9849	2,31(13)	2,39(13)	2,48(13)
		2,24803744[b]	2,19723208[b]	2,1480547[b]	-0,65824[b]	-0,65829[b]	-0,65833[b]	3,22(13)[b]	3,37(13)[b]	3,53(13)[b]
$4d_{3/2}$	$9f_{5/2}$	2,11	2,06	2,01	-1,4475	-1,4575	-1,4677	8,93(12)	9,13(12)	9,33(12)
		2,10461094[b]	2,05712776[b]	2,01116612[b]	-0,88603[b]	-0,886[b]	-0,88597[b]	2,18(13)[b]	2,28(13)[b]	2,38(13)[b]
$4d_{3/2}$	$2p_{3/2}$	0,57	0,56	0,55	-1,4279	-1,4309	-1,4339	1,91(14)	1,98(14)	2,06(14)
		0,57162104[a]	0,55892116[a]	0,54662829[a]	-1,377[a]	-1,37856[a]	-1,38013[a]	2,14(14)[a]	2,23(14)[a]	2,33(14)[a]
$4d_{3/2}$	$3p_{3/2}$	2,18	2,13	2,08	-0,6280	-0,6285	-0,6290	8,30(13)	8,68(13)	9,07(13)
		2,17188187[a]	2,12289057[a]	2,07546909[a]	-0,61472[a]	-0,61491[a]	-0,6151[a]	8,58(13)[a]	8,98(13)[a]	9,39(13)[a]
$4d_{3/2}$	$4p_{3/2}$	1204,92	1128,48	1057,67	-2,4824	-2,4639	-2,4457	3,78(6)	4,50(6)	5,34(6)
$4d_{3/2}$	$5p_{3/2}$	4,68	4,57	4,47	-1,8463	-1,8497	-1,8533	1,09(12)	1,13(12)	1,17(12)
		4,6867859[a]	4,58093877[a]	4,47848321[a]	-1,73492[a]	-1,73499[a]	-1,73508[a]	1,40(12)[a]	1,46(12)[a]	1,53(12)[a]
$4d_{3/2}$	$6p_{3/2}$	3,04	2,97	2,90	-2,7710	-2,7823	-2,7939	3,06(11)	3,12(11)	3,18(11)
		3,03979073[a]	2,97120262[a]	2,90481227[a]	-2,41074[a]	-2,41077[a]	-2,41079[a]	7,01(11)[a]	7,34(11)[a]	7,67(11)[a]
$4d_{3/2}$	$7p_{3/2}$	2,51	2,45	2,40	-3,8611	-3,9097	-3,9619	3,64(10)	3,41(10)	3,16(10)
		2,50970883[a]	2,45313[a]	2,39836414[a]	-2,81885[a]	-2,81885[a]	-2,81885[a]	4,02(11)[a]	4,21(11)[a]	4,40(11)[a]
$4d_{3/2}$	$8p_{3/2}$	2,26	2,21	2,16	-4,0815	-4,0068	-3,9374	2,72(10)	3,38(10)	4,14(10)
		2,25524111[a]	2,20443603[a]	2,15525891[a]	-3,1123[a]	-3,11228[a]	-3,11226[a]	2,53(11)[b]	2,65(11)[b]	2,77(11)[b]
$4d_{3/2}$	$9p_{3/2}$	2,11	2,06	2,02	-2,8005	-2,7735	-2,7472	5,93(11)	6,60(11)	7,34(11)
		2,10903278[a]	2,06154983[a]	2,01558841[a]	-3,34219[a]	-3,34217[a]	-3,34214[a]	1,71(11)[b]	1,78(11)[b]	1,87(11)[b]
$4d_{3/2}$	$2p_{1/2}$	0,49	0,48	0,47	-0,7400	-0,7438	-0,7477	1,26(15)	1,31(15)	1,37(15)
		0,4764854[a]	0,46351993[a]	0,45095402[a]	-0,35956[a]	-0,36152[a]	-0,36357[a]	1,60(15)[a]	1,69(15)[a]	1,78(15)[a]

Tablo 3.3. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			$A_{ki}(s^{-1})$		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$4d_{3/2}$	$3p_{1/2}$	1,90	1,86	1,81	-0,0870	-0,0904	-0,0937	3,77(14)	3,93(14)	4,10(14)
		1,7710729[a]	1,72141826[a]	1,67331224[a]	0,12885[a]	0,11994[a]	0,1107[a]	3,58(14)[a]	3,71(14)[a]	3,84(14)[a]
$4d_{3/2}$	$4p_{1/2}$	45,47	43,91	42,43	-0,3466	-0,3412	-0,3360	3,63(11)	3,94(11)	4,27(11)
		23,03148606[a]	21,85289249[a]	20,74038267[a]	0,22519[a]	0,23712[a]	0,24897[a]	2,64(12)[a]	3,01(12)[a]	3,44(12)[a]
$4d_{3/2}$	$5p_{1/2}$	4,90	4,80	4,69	-0,8458	-0,8456	-0,8455	1,98(13)	2,07(13)	2,16(13)
		5,22443769[a]	5,12394752[a]	5,02704846[a]	-0,82832[a]	-0,81773[a]	-0,80705[a]	3,63(13)[a]	3,87(13)[a]	4,12(13)[a]
$4d_{3/2}$	$6p_{1/2}$	3,09	3,02	2,95	-1,7883	-1,7942	-1,8003	5,71(12)	5,89(12)	6,07(12)
		3,16063286[a]	3,09294571[a]	3,02748598[a]	-1,59152[a]	-1,58373[a]	-1,57593[a]	1,71(13)[a]	1,82(13)[a]	1,93(13)[a]
$4d_{3/2}$	$7p_{1/2}$	2,53	2,47	2,42	-2,7106	-2,7357	-2,7619	1,02(12)	1,00(12)	9,89(11)
		2,56018264[a]	2,50394109[a]	2,44952324[a]	-2,02326[a]	-2,01622[a]	-2,0092[a]	9,65(12)[a]	1,02(13)[a]	1,09(13)[a]
$4d_{3/2}$	$8p_{1/2}$	2,26	2,21	2,16	-4,1067	-3,9560	-3,8263	5,09(10)	7,53(10)	1,06(11)
		2,28214516[a]	2,23150935[a]	2,18250683[a]	-2,32691[a]	-2,32022[a]	-2,31354[a]	6,03(12)[b]	6,41(12)[b]	6,80(12)[b]
$4d_{3/2}$	$9p_{1/2}$	2,11	2,07	2,02	-2,2304	-2,2018	-2,1739	4,39(12)	4,91(12)	5,47(12)
		2,12539907[a]	2,07801512[a]	2,03215578[a]	-2,56234[a]	-2,55584[a]	-2,54936[a]	4,05(12)[b]	4,30(12)[b]	4,56(12)[b]
$4d_{5/2}$	$4f_{7/2}$	188,37	180,25	172,57	-0,7809	-0,7714	-0,7620	3,89(9)	4,34(9)	4,84(9)
		184,89911407[a]	176,84723948[a]	169,22436224[a]	-0,65043[a]	-0,64081[a]	-0,63128[a]	4,09(9)[a]	4,57(9)[a]	5,10(9)[a]
$4d_{5/2}$	$5f_{7/2}$	4,75	4,64	4,54	0,6808	0,6802	0,6796	1,77(14)	1,85(14)	1,93(14)
		4,74860013[a]	4,64284472[a]	4,54048215[a]	0,80561[a]	0,80502[a]	0,80442[a]	1,77(14)[a]	1,85(14)[a]	1,93(14)[a]
$4d_{5/2}$	$6f_{7/2}$	3,10	3,03	2,97	0,0018	0,0012	0,0006	8,71(13)	9,09(13)	9,49(13)
		3,10024878[a]	3,0317133[a]	2,9653763[a]	0,13966[a]	0,13938[a]	0,1391[a]	8,97(13)[a]	9,38(13)[a]	9,80(13)[a]
$4d_{5/2}$	$7f_{7/2}$	2,56	2,51	2,45	-0,4284	-0,4295	-0,4306	4,73(13)	4,94(13)	5,15(13)
		2,56288822[a]	2,50635231[a]	2,45162997[a]	-0,26766[a]	-0,26785[a]	-0,26805[a]	5,14(13)[a]	5,37(13)[a]	5,61(13)[a]

Tablo 3.3. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			$A_{ki}(s^{-1})$		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$4d_{5/2}$	$8f_{7/2}$	2,30	2,25	2,20	-0,7660	-0,7680	-0,7701	2,69(13)	2,80(13)	2,92(13)
		2,3035952[b]	2,25282851[b]	2,20369033[b]	-0,56165[b]	-0,56181[b]	-0,56197[b]	3,23(13)[b]	3,38(13)[b]	3,53(13)[b]
$4d_{5/2}$	$9f_{7/2}$	2,15	2,11	2,06	-1,1208	-1,1259	-1,1310	1,36(13)	1,41(13)	1,45(13)
		2,15417005[b]	2,1067229[b]	2,06079778[b]	-0,79222[b]	-0,79237[b]	-0,79251[b]	2,17(13)[b]	2,27(13)[b]	2,37(13)[b]
$4d_{5/2}$	$4f_{5/2}$	6677,60	6236,49	5828,51	-3,6459	-3,6261	-3,6066	5,63(3)	6,76(3)	8,10(3)
$4d_{5/2}$	$5f_{5/2}$	4,81	4,71	4,60	-0,6036	-0,6038	-0,6040	1,20(13)	1,25(13)	1,31(13)
		4,81221407[a]	4,70645215	4,60	-0,60085[a]	-0,60099[a]	-0,60113[a]	1,20(13)[a]	1,26(13)[a]	1,31(13)[a]
$4d_{5/2}$	$6f_{5/2}$	3,12	3,05	2,98	-1,3113	-1,3121	-1,3130	5,59(12)	5,84(12)	6,09(12)
		3,11583706[a]	3,04730291[a]	2,98096725[a]	-1,29072[a]	-1,2911[a]	-1,29148[a]	5,86(12)[a]	6,12(12)[a]	6,39(12)[a]
$4d_{5/2}$	$7f_{5/2}$	2,57	2,51	2,46	-1,7579	-1,7596	-1,7613	2,94(12)	3,06(12)	3,19(12)
		2,56958246[a]	2,51304745[a]	2,45832601[a]	-1,70807[a]	-1,70859[a]	-1,70912[a]	3,30(12)[a]	3,44(12)[a]	3,59(12)[a]
$4d_{5/2}$	$8f_{5/2}$	2,31	2,26	2,21	-2,1102	-2,1133	-2,1163	1,62(12)	1,68(12)	1,75(12)
		2,30721347[b]	2,25644731[b]	2,20730968[b]	-2,00765[b]	-2,00827[b]	-2,00889[b]	2,05(12)[b]	2,14(12)[b]	2,24(12)[b]
$4d_{5/2}$	$9f_{5/2}$	2,16	2,11	2,06	-2,4862	-2,4927	-2,4994	7,81(11)	8,04(11)	8,28(11)
		2,15638993[b]	2,10894311[b]	2,06301833[b]	-2,24178[b]	-2,24246[b]	-2,24316[b]	1,37(12)[b]	1,43(12)[b]	1,49(12)[b]
$4d_{5/2}$	$2p_{3/2}$	0,57	0,56	0,54	-0,4115	-0,4129	-0,4143	1,34(15)	1,39(15)	1,45(15)
		0,56791724[a]	0,55521483[a]	0,5429194[a]	-0,21041[a]	-0,21105[a]	-0,2117[a]	1,42(15)[a]	1,48(15)[a]	1,54(15)[a]
$4d_{5/2}$	$3p_{3/2}$	2,13	2,08	2,03	0,2823	0,2808	0,2793	4,71(14)	4,92(14)	5,13(14)
		2,11936528[a]	2,07039613[a]	2,02299707[a]	0,45942[a]	0,45788[a]	0,4563[a]	4,75(14)[a]	4,96(14)[a]	5,18(14)[a]
$4d_{5/2}$	$4p_{3/2}$	103,46	99,24	95,24	-0,4457	-0,4373	-0,4291	3,72(10)	4,12(10)	4,56(10)
		87,64870372[a]	83,72741872[a]	80,01727281[a]	-0,20498[a]	-0,19504[a]	-0,18519[a]	6,02(10)[a]	6,75(10)[a]	7,56(10)[a]
$4d_{5/2}$	$5p_{3/2}$	4,92	4,81	4,71	-0,6757	-0,6743	-0,6730	1,46(13)	1,53(13)	1,60(13)
		4,95155753[a]	4,84608007[a]	4,74399993[a]	-0,77662[a]	-0,77291[a]	-0,76917[a]	1,71(13)[a]	1,80(13)[a]	1,89(13)[a]

Tablo 3.3. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			$A_{ki}(s^{-1})$		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$4d_{5/2}$	$6p_{3/2}$	3,14	3,07	3,00	-1,4843	-1,4860	-1,4879	5,55(12)	5,78(12)	6,01(12)
		3,14900295[a]	3,08051984[a]	3,01423601[a]	-1,47612[a]	-1,47296[a]	-1,46977[a]	8,43(12)[a]	8,87(12)[a]	9,33(12)[a]
$4d_{5/2}$	$7p_{3/2}$	2,58	2,52	2,47	-2,1115	-2,1194	-2,1275	1,94(12)	1,99(12)	2,04(12)
		2,58368948[a]	2,52717368[a]	2,47247173[a]	-1,89072[a]	-1,8877[a]	-1,88467[a]	4,82(12)[a]	5,07(12)[a]	5,34(12)[a]
$4d_{5/2}$	$8p_{3/2}$	2,31	2,26	2,21	-2,9647	-2,9969	-3,0307	3,39(11)	3,29(11)	3,18(11)
		2,31480202[b]	2,26404545[b]	2,21491754[b]	-2,1869[b]	-2,18395[b]	-2,18098[b]	3,04(12)[b]	3,19(12)[b]	3,36(12)[b]
$4d_{5/2}$	$9p_{3/2}$	2,16	2,11	2,06	-3,0824	-3,0248	-2,9704	2,96(11)	3,54(11)	4,19(11)
		2,16103227[b]	2,113591[b]	2,06767186[b]	-2,41822[b]	-2,4153[b]	-2,41236[b]	2,04(12)[b]	2,15(12)[b]	2,26(12)[b]
$4s_{1/2}$	$2p_{3/2}$	0,58	0,56	0,55	-2,0545	-2,0623	-2,0704	8,83(13)	9,07(13)	9,30(13)
		0,58616924[a]	0,57359165[a]	0,56142507[a]	-1,82469[a]	-1,81807[a]	-1,81149[a]	2,91(14)[a]	3,08(14)[a]	3,27(14)[a]
$4s_{1/2}$	$3p_{3/2}$	2,26	2,21	2,16	-0,7273	-0,7271	-0,7269	1,22(14)	1,28(14)	1,34(14)
		2,39801612[a]	2,3513074[a]	2,30625355[a]	-0,74019[a]	-0,73078[a]	-0,72127[a]	2,11(14)[a]	2,24(14)[a]	2,38(14)[a]
$4s_{1/2}$	$4p_{3/2}$	53,41	51,72	50,12	-0,3287	-0,3246	-0,3207	2,74(11)	2,95(11)	3,17(11)
		23,03148606[a]	21,85289249[a]	20,74038267[a]	0,29736[a]	0,30852[a]	0,3196[a]	3,12(12)[a]	3,55(12)[a]	4,05(12)[a]
$4s_{1/2}$	$5p_{3/2}$	4,31	4,21	4,12	-0,3713	-0,3743	-0,3772	3,81(13)	3,97(13)	4,13(13)
		3,89431363[a]	3,78706974[a]	3,68317338[a]	-0,32152[a]	-0,33955[a]	-0,35838[a]	2,62(13)[a]	2,66(13)[a]	2,69(13)[a]
$4s_{1/2}$	$6p_{3/2}$	2,88	2,82	2,75	-1,0089	-1,0134	-1,0179	1,97(13)	2,04(13)	2,11(13)
		2,68536514[a]	2,61557858[a]	2,54795607[a]	-0,78433[a]	-0,79785[a]	-0,81198[a]	1,90(13)[a]	1,94(13)[a]	1,98(13)[a]
$4s_{1/2}$	$7p_{3/2}$	2,40	2,35	2,29	-1,5266	-1,5349	-1,5432	8,60(12)	8,83(12)	9,07(12)
		2,26310179[a]	2,20554335[a]	2,14977027[a]	-1,10157[a]	-1,11347[a]	-1,12591[a]	1,29(13)[a]	1,32(13)[a]	1,35(13)[a]
$4s_{1/2}$	$8p_{3/2}$	2,17	2,12	2,07	-2,1983	-2,2192	-2,2404	2,25(12)	2,24(12)	2,23(12)
		2,05410348[b]	2,00243778[b]	1,95237572[b]	-1,34457[b]	-1,35565[b]	-1,36723[b]	8,94(12)[b]	9,17(12)[b]	9,39(12)[b]

Tablo 3.3. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			$A_{ki}(s^{-1})$		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$4s_{1/2}$	$9p_{3/2}$	2,03	1,99	1,94	-2,9620	-2,8946	-2,8325	4,40(11)	5,38(11)	6,50(11)
		1,93210647[b]	1,88383347[b]	1,83705959[b]	-1,54283[b]	-1,55343[b]	-1,5645[b]	6,40(12)[b]	6,57(12)[b]	6,73(12)[b]
$4s_{1/2}$	$2p_{1/2}$	0,50	0,48	0,47	-3,0192	-2,9447	-2,8753	1,30(13)	1,62(13)	2,00(13)
		0,48655138[a]	0,47356468[a]	0,46097695[a]	-2,24216[a]	-2,24307[a]	-2,244[a]	8,07(13)[a]	8,50(13)[a]	8,95(13)[a]
$4s_{1/2}$	$3p_{1/2}$	1,97	1,92	1,88	-1,5555	-1,5666	-1,5778	2,39(13)	2,45(13)	2,51(13)
		1,91860997[a]	1,86861468[a]	1,8201609[a]	-1,219[a]	-1,21984[a]	-1,22071[a]	5,47(13)[a]	5,76(13)[a]	6,06(13)[a]
$4s_{1/2}$	$4p_{1/2}$	243,94	231,14	219,19	-1,3050	-1,2916	-1,2784	2,78(9)	3,19(9)	3,66(9)
$4s_{1/2}$	$5p_{1/2}$	4,51	4,41	4,31	-0,4852	-0,4857	-0,4862	5,37(13)	5,61(13)	5,87(13)
		4,25845443[a]	4,15071129[a]	4,0463059[a]	-0,44864[a]	-0,44887[a]	-0,4491[a]	6,55(13)[a]	6,89(13)[a]	7,24(13)[a]
$4s_{1/2}$	$6p_{1/2}$	2,92	2,86	2,79	-1,2091	-1,2120	-1,2149	2,41(13)	2,51(13)	2,61(13)
		2,77923569[a]	2,70946237[a]	2,64185311[a]	-1,04868[a]	-1,04903[a]	-1,04938[a]	3,86(13)[a]	4,06(13)[a]	4,26(13)[a]
$4s_{1/2}$	$7p_{1/2}$	2,42	2,36	2,31	-1,7682	-1,7749	-1,7816	9,73(12)	1,00(13)	1,03(13)
		2,30406276[a]	2,24652992[a]	2,1907829[a]	-1,41675[a]	-1,41718[a]	-1,41763[a]	2,41(13)[a]	2,53(13)[a]	2,66(13)[a]
$4s_{1/2}$	$8p_{1/2}$	2,18	2,13	2,08	-2,4635	-2,4816	-2,4999	2,42(12)	2,43(12)	2,44(12)
		2,07639883[b]	2,02475172[b]	1,97470859[b]	-1,68622[b]	-1,68673[b]	-1,68725[b]	1,59(13)[b]	1,67(13)[b]	1,76(13)[b]
$4s_{1/2}$	$9p_{1/2}$	2,04	1,99	1,95	-3,3817	-3,3120	-3,2482	3,34(11)	4,10(11)	4,97(11)
		1,94583307[b]	1,89757287[b]	1,85081205[b]	-1,9006[b]	-1,90117[b]	-1,90175[b]	1,11(13)[b]	1,16(13)[b]	1,22(13)[b]
$5d_{3/2}$	$4f_{5/2}$	4,92	4,82	4,71	-1,1776	-1,1758	-1,1740	4,57(12)	4,79(12)	5,03(12)
		4,95155753[a]	4,70645215[a]	4,74399993[a]	-1,27215[a]	-2,44396[a]	-1,26353[a]	5,45(12)[a]	1,81(11)[a]	6,06(12)[a]
$5d_{3/2}$	$5f_{5/2}$	206,14	197,83	189,95	-0,4209	-0,4127	-0,4045	9,93(9)	1,10(10)	1,21(10)
		171,00159877[a]	163,34730709[a]	156,10525339[a]	-0,16951[a]	-0,15939[a]	-0,14938[a]	1,72(10)[a]	1,92(10)[a]	2,16(10)[a]
$5d_{3/2}$	$6f_{5/2}$	8,47	8,28	8,09	0,4632	0,4619	0,4605	4,50(13)	4,70(13)	4,90(13)
		8,40446391[a]	8,64418036[a]	8,02124013[a]	0,63645[a]	-0,62038[a]	0,63307[a]	4,54(13)[a]	3,57(12)[a]	4,95(13)[a]

Tablo 3.3. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			$A_{ki}(s^{-1})$		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$5d_{3/2}$	$7f_{5/2}$	5,37	5,25	5,13	-0,1665	-0,1679	-0,1693	2,63(13)	2,74(13)	2,86(13)
		5,34154853[a]	5,39231887[a]	5,10234565[a]	0,04169[a]	-1,25903[a]	0,04009[a]	2,86(13)[a]	2,11(12)[a]	3,12(13)[a]
$5d_{3/2}$	$8f_{5/2}$	4,34	4,24	4,15	-0,5991	-0,6016	-0,6041	1,49(13)	1,55(13)	1,61(13)
		4,32027754[b]	4,22257725[b]	4,12800772[b]	-0,33092[b]	-0,33139[b]	-0,33187[b]	1,85(13)[b]	1,94(13)[b]	2,03(13)[b]
$5d_{3/2}$	$9f_{5/2}$	3,83	3,75	3,66	-1,0463	-1,0528	-1,0593	6,80(12)	7,01(12)	7,22(12)
		3,81998161[b]	3,73386767[b]	3,65051324[b]	-0,60393[b]	-0,60423[b]	-0,60453[b]	1,26(13)[b]	1,32(13)[b]	1,38(13)[b]
$5d_{3/2}$	$2p_{3/2}$	0,51	0,50	0,49	-1,9450	-1,9500	-1,9551	7,30(13)	7,55(13)	7,80(13)
		0,50948234[a]	0,49814268[a]	0,48716643[a]	-1,83154[a]	-1,83349[a]	-1,83547[a]	9,47(13)[a]	9,86(13)[a]	1,03(14)[a]
$5d_{3/2}$	$3p_{3/2}$	1,49	1,45	1,42	-1,3338	-1,3357	-1,3377	3,50(13)	3,65(13)	3,80(13)
		1,48412865[a]	1,45063832[a]	1,4182211[a]	-1,27628[a]	-1,2768[a]	-1,27733[a]	4,01(13)[a]	4,19(13)[a]	4,38(13)[a]
$5d_{3/2}$	$4p_{3/2}$	4,70	4,60	4,50	-0,6322	-0,6326	-0,6330	1,76(13)	1,84(13)	1,92(13)
		4,6867859[a]	4,58093877[a]	4,47848321[a]	-0,61623[a]	-0,6163[a]	-0,61637[a]	1,84(13)[a]	1,92(13)[a]	2,01(13)[a]
$5d_{3/2}$	$5p_{3/2}$	2327,24	2185,06	2053,13	-2,3244	-2,3068	-2,2895	1,46(6)	1,72(6)	2,03(6)
$5d_{3/2}$	$6p_{3/2}$	8,64	8,45	8,26	-1,5927	-1,5954	-1,5982	5,71(11)	5,93(11)	6,17(11)
		8,65020648[a]	8,45535917[a]	8,26675552[a]	-1,50001[a]	-1,50014[a]	-1,50026[a]	7,05(11)[a]	7,37(11)[a]	7,71(11)[a]
$5d_{3/2}$	$7p_{3/2}$	5,41	5,28	5,17	-2,4669	-2,4754	-2,4841	1,95(11)	2,00(11)	2,05(11)
		5,40287164[a]	5,28131969[a]	5,16366283[a]	-2,16559[a]	-2,16568[a]	-2,16577[a]	3,90(11)[a]	4,08(11)[a]	4,27(11)[a]
$5d_{3/2}$	$8p_{3/2}$	4,35	4,25	4,16	-3,5119	-3,5493	-3,5887	2,71(10)	2,60(10)	2,48(10)
		4,34696177[b]	4,24926354[b]	4,15469607[b]	-2,56805[b]	-2,56812[b]	-2,56819[b]	2,39(11)[b]	2,50(11)[b]	2,61(11)[b]
$5d_{3/2}$	$9p_{3/2}$	3,84	3,75	3,67	-3,3072	-3,2630	-3,2208	5,58(10)	6,46(10)	7,44(10)
		3,83457399[b]	3,74846193[b]	3,66510939[b]	-2,85737[b]	-2,85743[b]	-2,85749[b]	1,58(11)[b]	1,65(11)[b]	1,72(11)[b]
$5d_{3/2}$	$2p_{1/2}$	0,44	0,43	0,42	-1,2804	-1,2875	-1,2948	4,42(14)	4,58(14)	4,73(14)
		0,4325136[a]	0,4209285[a]	0,40969992[a]	-0,76576[a]	-0,76687[a]	-0,76804[a]	7,64(14)[a]	8,05(14)[a]	8,47(14)[a]

Tablo 3.3. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			$A_{ki}(s^{-1})$		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$5d_{3/2}$	$3p_{1/2}$	1,35	1,32	1,29	-0,7274	-0,7314	-0,7355	1,71(14)	1,77(14)	1,84(14)
		1,28535475[a]	1,25123214[a]	1,21816481[a]	-0,39494[a]	-0,40038[a]	-0,40604[a]	2,03(14)[a]	2,12(14)[a]	2,21(14)[a]
$5d_{3/2}$	$4p_{1/2}$	4,25	4,15	4,05	-0,1028	-0,1057	-0,1085	7,30(13)	7,60(13)	7,92(13)
		3,89431363[a]	3,78706974[a]	3,68317338[a]	0,04668[a]	0,03471[a]	0,02226[a]	6,12(13)[a]	6,30(13)[a]	6,47(13)[a]
$5d_{3/2}$	$5p_{1/2}$	104,53	101,25	98,12	-0,2685	-0,2644	-0,2604	8,22(10)	8,85(10)	9,51(10)
		45,54215484[a]	43,22672499[a]	41,04079159[a]	0,36838[a]	0,38017[a]	0,39189[a]	9,39(11)[a]	1,07(12)[a]	1,22(12)[a]
$5d_{3/2}$	$6p_{1/2}$	9,04	8,84	8,64	-0,6400	-0,6401	-0,6404	9,36(12)	9,78(12)	1,02(13)
		9,70624124[a]	9,52194954[a]	9,34429432[a]	-0,61679[a]	-0,6066[a]	-0,59631[a]	1,71(13)[a]	1,82(13)[a]	1,94(13)[a]
$5d_{3/2}$	$7p_{1/2}$	5,49	5,37	5,25	-1,5384	-1,5432	-1,5483	3,20(12)	3,32(12)	3,43(12)
		5,64234436[a]	5,52258721[a]	5,40678419[a]	-1,37294[a]	-1,36561[a]	-1,35828[a]	8,88(12)[a]	9,42(12)[a]	1,00(13)[a]
$5d_{3/2}$	$8p_{1/2}$	4,38	4,29	4,19	-2,4524	-2,4740	-2,4964	6,13(11)	6,10(11)	6,06(11)
		4,44803481[b]	4,35101716[b]	4,25715189[b]	-1,80016[b]	-1,79361[b]	-1,78707[b]	5,34(12)[b]	5,67(12)[b]	6,01(12)[b]
$5d_{3/2}$	$9p_{1/2}$	3,85	3,77	3,68	-2,9391	-2,8810	-2,8263	2,58(11)	3,09(11)	3,67(11)
		3,88902225[b]	3,80325626[b]	3,72026061[b]	-2,10016[b]	-2,09395[b]	-2,08777[b]	3,50(12)[b]	3,71(12)[b]	3,94(12)[b]
$5d_{5/2}$	$4f_{7/2}$	4,94	4,83	4,73	-1,0687	-1,0672	-1,0657	3,90(12)	4,08(12)	4,28(12)
		4,94080423[a]	4,83512992[a]	4,73284951[a]	-1,16224[a]	-1,15989[a]	-1,15752[a]	4,18(12)[a]	4,39(12)[a]	4,60(12)[a]
$5d_{5/2}$	$5f_{7/2}$	384,09	367,92	352,61	-0,5363	-0,5272	-0,5182	1,64(9)	1,83(9)	2,03(9)
		359,21812205[a]	343,53419253[a]	328,68678874[a]	-0,38539[a]	-0,3757[a]	-0,3661[a]	2,00(9)[a]	2,23(9)[a]	2,49(9)[a]
$5d_{5/2}$	$6f_{7/2}$	8,73	8,53	8,34	0,6497	0,6490	0,6482	4,89(13)	5,10(13)	5,33(13)
		8,71458137[a]	8,51990359[a]	8,33147179[a]	0,77653[a]	0,7758[a]	0,77505[a]	4,92(13)[a]	5,14(13)[a]	5,37(13)[a]
$5d_{5/2}$	$7f_{7/2}$	5,49	5,37	5,25	0,0152	0,0144	0,0136	2,87(13)	2,99(13)	3,12(13)
		5,4830503[a]	5,36158724[a]	5,24402053[a]	0,16021[a]	0,15984[a]	0,15947[a]	3,01(13)[a]	3,14(13)[a]	3,28(13)[a]

Tablo 3.3. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			$A_{ki}(s^{-1})$		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$5d_{5/2}$	$8f_{7/2}$	4,42	4,32	4,23	-0,4012	-0,4027	-0,4042	1,69(13)	1,76(13)	1,84(13)
		4,41892283[b]	4,32129418[b]	4,22679728[b]	-0,22096[b]	-0,22121[b]	-0,22146[b]	1,93(13)[b]	2,01(13)[b]	2,10(13)[b]
$5d_{5/2}$	$9f_{7/2}$	3,90	3,82	3,73	-0,7790	-0,7828	-0,7866	9,11(12)	9,44(12)	9,78(12)
		3,89998335[b]	3,81393198[b]	3,73064098[b]	-0,49862[b]	-0,49881[b]	-0,499[b]	1,30(13)[b]	1,36(13)[b]	1,42(13)[b]
$5d_{5/2}$	$4f_{5/2}$	4,81	4,70	4,60	-2,5051	-2,5068	-2,5085	1,50(11)	1,57(11)	1,63(11)
		4,81221407[a]	4,70645215[a]	4,60408299[a]	-2,44409[a]	-2,44396[a]	-2,44383[a]	1,73(11)[a]	1,81(11)[a]	1,89(11)[a]
$5d_{5/2}$	$5f_{5/2}$	8636,69	8079,97	7564,48	-3,1993	-3,1802	-3,1613	9,42(3)	1,12(4)	1,34(4)
$5d_{5/2}$	$6f_{5/2}$	8,84	8,65	8,46	-0,6267	-0,6269	-0,6271	3,36(12)	3,51(12)	3,67(12)
		8,83888124[a]	8,64418036[a]	8,4557252[a]	-0,62032[a]	-0,62038[a]	-0,62044[a]	3,41(12)[a]	3,57(12)[a]	3,73(12)[a]
$5d_{5/2}$	$7f_{5/2}$	5,51	5,39	5,28	-1,2879	-1,2888	-1,2897	1,88(12)	1,97(12)	2,05(12)
		5,51378161[a]	5,39231887[a]	5,27475247[a]	-1,25883[a]	-1,25903[a]	-1,25923[a]	2,02(12)[a]	2,11(12)[a]	2,20(12)[a]
$5d_{5/2}$	$8f_{5/2}$	4,43	4,33	4,24	-1,7210	-1,7229	-1,7248	1,08(12)	1,12(12)	1,17(12)
		4,43225648[b]	4,33462872[b]	4,24013271[b]	-1,64922[b]	-1,64951[b]	-1,6498[b]	1,27(12)[b]	1,33(12)[b]	1,38(12)[b]
$5d_{5/2}$	$9f_{5/2}$	3,91	3,82	3,74	-2,1178	-2,1223	-2,1269	5,55(11)	5,75(11)	5,94(11)
		3,90726549[b]	3,82121475[b]	3,7379244[b]	-1,93207[b]	-1,93242[b]	-1,93278[b]	8,51(11)[b]	8,90(11)[b]	9,29(11)[b]
$5d_{5/2}$	$2p_{3/2}$	0,51	0,50	0,49	-0,8919	-0,8943	-0,8968	5,53(14)	5,75(14)	5,98(14)
		0,50796889[a]	0,49662817[a]	0,48565083[a]	-0,64624[a]	-0,64682[a]	-0,64739[a]	6,49(14)[a]	6,78(14)[a]	7,08(14)[a]
$5d_{5/2}$	$3p_{3/2}$	1,47	1,44	1,41	-0,3690	-0,3706	-0,3723	2,19(14)	2,28(14)	2,38(14)
		1,47135868[a]	1,43786904[a]	1,40545252[a]	-0,15891[a]	-0,15977[a]	-0,16065[a]	2,37(14)[a]	2,48(14)[a]	2,59(14)[a]
$5d_{5/2}$	$4p_{3/2}$	4,60	4,49	4,39	0,2629	0,2613	0,2596	9,64(13)	1,01(14)	1,05(14)
		4,56175793[a]	4,45597469[a]	4,35358381[a]	0,43723[a]	0,43527[a]	0,43328[a]	9,75(13)[a]	1,02(14)[a]	1,06(14)[a]
$5d_{5/2}$	$5p_{3/2}$	220,40	211,82	203,68	-0,3352	-0,3276	-0,3201	1,06(10)	1,17(10)	1,28(10)
		171,00159877[a]	163,34730709[a]	156,10525339[a]	-0,05635[a]	-0,04636[a]	-0,03646[a]	2,23(10)[a]	2,50(10)[a]	2,80(10)[a]

Tablo 3.3. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			$A_{ki}(s^{-1})$		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$5d_{5/2}$	$6p_{3/2}$	9,03	8,83	8,64	-0,4564	-0,4554	-0,4545	7,15(12)	7,49(12)	7,84(12)
		9,1110961[a]	8,91692673[a]	8,72901162[a]	-0,55172[a]	-0,54822[a]	-0,54469[a]	8,46(12)[a]	8,90(12)[a]	9,37(12)[a]
$5d_{5/2}$	$7p_{3/2}$	5,56	5,43	5,32	-1,2495	-1,2514	-1,2534	3,04(12)	3,17(12)	3,29(12)
		5,57914729[a]	5,45777978[a]	5,34031006[a]	-1,24179[a]	-1,23886[a]	-1,23591[a]	4,61(12)[a]	4,84(12)[a]	5,09(12)[a]
$5d_{5/2}$	$8p_{3/2}$	4,45	4,35	4,26	-1,9020	-1,9106	-1,9194	1,06(12)	1,08(12)	1,11(12)
		4,46034642[b]	4,36275482[b]	4,26829552[b]	-1,65105[b]	-1,64828[b]	-1,64549[b]	2,81(12)[b]	2,95(12)[b]	3,11(12)[b]
$5d_{5/2}$	$9p_{3/2}$	3,91	3,83	3,74	-3,5654	-3,6776	-3,8079	2,96(10)	2,39(10)	1,85(10)
		3,92253367[b]	3,8365012[b]	3,75322939[b]	-1,94327[b]	-1,94056[b]	-1,93784[b]	1,85(12)[b]	1,95(12)[b]	2,05(12)[b]
$5g_{7/2}$	$4f_{7/2}$	4,87	4,77	4,67	-0,5328	-0,5330	-0,5332	1,03(13)	1,07(13)	1,12(13)
		4,83521917[a]	4,76802159[a]	4,66566731[a]	1,10577[a]	-0,53553[a]	-0,53578[a]	2,91(14)[a]	1,07(13)[a]	1,12(13)[a]
$5g_{7/2}$	$5f_{7/2}$	42130,15	39361,81	36800,64	-4,2651	-4,2454	-4,2258	2,55(1)	3,06(1)	3,66(1)
$5g_{7/2}$	$6f_{7/2}$	8,93	8,73	8,54	-2,7058	-2,7066	-2,7075	2,06(10)	2,15(10)	2,24(10)
		8,9312523[a]	8,7365772[a]	8,54814815[a]	-2,67106[a]	-2,67095[a]	-2,67083[a]	2,23(10)[a]	2,33(10)[a]	2,43(10)[a]
$5g_{7/2}$	$7f_{7/2}$	5,57	5,44	5,33	-3,6357	-3,6402	-3,6447	6,23(9)	6,44(9)	6,66(9)
		5,56804001[a]	5,446593[a]	5,32904253[a]	-3,46566[a]	-3,46547[a]	-3,46527[a]	9,20(9)[a]	9,62(9)[a]	1,01(10)[a]
$5g_{7/2}$	$8f_{7/2}$	4,47	4,37	4,28	-4,5723	-4,5941	-4,6169	1,12(9)	1,11(9)	1,10(9)
$5g_{7/2}$	$9f_{7/2}$	3,94	3,85	3,77	-4,8321	-4,7781	-4,7268	7,90(8)	9,35(8)	1,10(9)
$5g_{7/2}$	$4f_{5/2}$	4,75	4,64	4,54	0,8939	0,8936	0,8933	2,90(14)	3,03(14)	3,17(14)
		4,74860013[a]	4,64284472[a]	4,54048215[a]	1,01644[a]	1,01609[a]	1,01573[a]	2,88(14)[a]	3,01(14)[a]	3,15(14)[a]
$5g_{7/2}$	$5f_{5/2}$	370,97	355,07	340,01	-0,7698	-0,7603	-0,7510	1,03(9)	1,15(9)	1,28(9)
		359,21812205[a]	343,53419253[a]	328,68678874[a]	-0,63317[a]	-0,62342[a]	-0,61378[a]	1,13(9)[a]	1,26(9)[a]	1,41(9)[a]
$5g_{7/2}$	$6f_{5/2}$	9,05	8,85	8,67	-1,1710	-1,1697	-1,1684	9,16(11)	9,59(11)	1,00(12)
		9,06185627[a]	8,86730393[a]	8,67899926[a]	-1,25656[a]	-1,25417[a]	-1,25175[a]	1,00(12)[a]	1,05(12)[a]	1,10(12)[a]

Tablo 3.3. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			$A_{ki}(s^{-1})$		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$5g_{7/2}$	$7f_{5/2}$	5,59	5,47	5,35	-2,1027	-2,1048	-2,1070	2,80(11)	2,92(11)	3,03(11)
		5,59973415[a]	5,4783097[a]	5,36078209[a]	-2,05756[a]	-2,05526[a]	-2,05295[a]	4,14(11)[a]	4,35(11)[a]	4,57(11)[a]
$5g_{7/2}$	$8f_{5/2}$	4,48	4,39	4,29	-2,9930	-3,0089	-3,0253	5,62(10)	5,66(10)	5,70(10)
$5g_{7/2}$	$9f_{5/2}$	3,95	3,86	3,78	-3,5760	-3,5145	-3,4565	1,89(10)	2,28(10)	2,72(10)
$5g_{9/2}$	$4f_{7/2}$	4,83	4,73	4,63	1,0118	1,0116	1,0115	2,93(14)	3,06(14)	3,20(14)
		4,83521917[a]	4,7294673[a]	4,62710832[a]	1,10577[a]	1,10553[a]	1,10528[a]	2,91(14)[a]	3,04(14)[a]	3,18(14)[a]
$5g_{9/2}$	$5f_{7/2}$	614,57	588,10	563,04	-0,8761	-0,8665	-0,8571	2,35(8)	2,62(8)	2,92(8)
		611,3089238[a]	584,89477544[a]	559,88363726[a]	-0,77813[a]	-0,76856[a]	-0,7591[a]	2,38(8)[a]	2,66(8)[a]	2,96(8)[a]
$5g_{9/2}$	$6f_{7/2}$	9,06	8,87	8,68	-1,0798	-1,0788	-1,0777	8,45(11)	8,85(11)	9,26(11)
		9,06367299[a]	8,7365772[a]	8,6806824[a]	-1,15712[a]	-2,67095[a]	-1,15403[a]	8,84(11)[a]	2,33(10)[a]	9,70(11)[a]
$5g_{9/2}$	$7f_{7/2}$	5,62	5,50	5,38	-1,9546	-1,9554	-1,9563	2,93(11)	3,06(11)	3,19(11)
		5,61922208[a]	5,446593[a]	5,38025245[a]	-1,95571[a]	-3,46547[a]	-1,95268[a]	3,66(11)[a]	9,62(9)[a]	4,01(11)[a]
$5g_{9/2}$	$8f_{7/2}$	4,51	4,41	4,31	-2,6473	-2,6540	-2,6608	9,25(10)	9,52(10)	9,79(10)
$5g_{9/2}$	$9f_{7/2}$	3,97	3,88	3,80	-4,5443	-4,6898	-4,8665	1,51(9)	1,13(9)	7,86(8)
$5s_{1/2}$	$2p_{3/2}$	0,51	0,50	0,49	-2,9646	-2,9935	-3,0240	1,38(13)	1,35(13)	1,32(13)
		0,51524642[a]	0,50395018[a]	0,49301871[a]	-2,25483[a]	-2,24918[a]	-2,24358[a]	1,40(14)[a]	1,48(14)[a]	1,57(14)[a]
$5s_{1/2}$	$3p_{3/2}$	1,50	1,47	1,44	-1,5960	-1,6008	-1,6057	3,74(13)	3,87(13)	4,01(13)
		1,53412267[a]	1,50101047[a]	1,46898387[a]	-1,47695[a]	-1,47068[a]	-1,46442[a]	9,45(13)[a]	1,00(14)[a]	1,06(14)[a]
$5s_{1/2}$	$4p_{3/2}$	4,88	4,77	4,67	-0,5357	-0,5358	-0,5359	4,08(13)	4,26(13)	4,46(13)
		5,22443769[a]	5,12394752[a]	5,02704846[a]	-0,5444[a]	-0,53522[a]	-0,52595[a]	6,98(13)[a]	7,41(13)[a]	7,86(13)[a]
$5s_{1/2}$	$5p_{3/2}$	121,57	118,04	114,68	-0,2828	-0,2797	-0,2769	5,88(10)	6,28(10)	6,70(10)
		45,54215484[a]	43,22672499[a]	41,04079159[a]	0,40631[a]	0,41749[a]	0,42858[a]	1,02(12)[a]	1,17(12)[a]	1,33(12)[a]

Tablo 3.3. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			$A_{ki}(s^{-1})$		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$5s_{1/2}$	$6p_{3/2}$	8,10	7,91	7,73	-0,3047	-0,3069	-0,3091	1,26(13)	1,31(13)	1,37(13)
		7,26945705[a]	7,07203456[a]	6,88077608[a]	-0,30639[a]	-0,32607[a]	-0,34665[a]	7,79(12)[a]	7,87(12)[a]	7,93(12)[a]
$5s_{1/2}$	$7p_{3/2}$	5,19	5,07	4,96	-0,9488	-0,9526	-0,9564	6,97(12)	7,24(12)	7,51(12)
		4,82988103[a]	4,70631532[a]	4,5865883[a]	-0,76345[a]	-0,77834[a]	-0,79392[a]	6,16(12)[a]	6,27(12)[a]	6,37(12)[a]
$5s_{1/2}$	$8p_{3/2}$	4,21	4,11	4,02	-1,5057	-1,5137	-1,5218	2,94(12)	3,02(12)	3,10(12)
		3,96820027[b]	3,8689399[b]	3,77276636[b]	-1,07494[b]	-1,08807[b]	-1,10181[b]	4,46(12)[b]	4,55(12)[b]	4,63(12)[b]
$5s_{1/2}$	$9p_{3/2}$	3,73	3,64	3,56	-2,8021	-2,8535	-2,9076	1,89(11)	1,76(11)	1,62(11)
		3,53678274[b]	3,44934727[b]	3,36463391[b]	-1,31241[b]	-1,32463[b]	-1,33742[b]	3,25(12)[b]	3,32(12)[b]	3,39(12)[b]
$5s_{1/2}$	$2p_{1/2}$	0,45	0,44	0,42	-2,3603	-2,3247	-2,2900	7,30(13)	8,34(13)	9,51(13)
		0,43666056[a]	0,42506768[a]	0,41383109[a]	-2,64395[a]	-2,64494[a]	-2,64596[a]	3,97(13)[a]	4,18(13)[a]	4,40(13)[a]
$5s_{1/2}$	$3p_{1/2}$	1,37	1,33	1,30	-2,9275	-2,9757	-3,0270	2,11(12)	1,98(12)	1,85(12)
		1,32268544[a]	1,28852966[a]	1,25542819[a]	-1,85615[a]	-1,85699[a]	-1,85785[a]	2,65(13)[a]	2,79(13)[a]	2,94(13)[a]
$5s_{1/2}$	$4p_{1/2}$	4,39	4,29	4,19	-1,2093	-1,2152	-1,2211	1,07(13)	1,10(13)	1,14(13)
		4,25845443[a]	4,15071129[a]	4,0463059[a]	-0,99992[a]	-1,00062[a]	-1,00134[a]	1,84(13)[a]	1,93(13)[a]	2,03(13)[a]
$5s_{1/2}$	$5p_{1/2}$	564,92	536,84	510,56	-1,2614	-1,2491	-1,2371	5,72(8)	6,52(8)	7,41(8)
$5s_{1/2}$	$6p_{1/2}$	8,44	8,25	8,07	-0,4318	-0,4322	-0,4326	1,73(13)	1,81(13)	1,89(13)
		8,00101311[a]	7,80309075[a]	7,61132444[a]	-0,40052[a]	-0,40074[a]	-0,84846[a]	2,07(13)[a]	2,18(13)[a]	8,16(12)[a]
$5s_{1/2}$	$7p_{1/2}$	5,26	5,15	5,03	-1,1493	-1,1517	-1,1542	8,54(12)	8,88(12)	9,24(12)
		5,02035821[a]	4,8969585[a]	4,77740117[a]	-0,9966[a]	-0,99689[a]	-1,47764[a]	1,33(13)[a]	1,40(13)[a]	4,87(12)[a]
$5s_{1/2}$	$8p_{1/2}$	4,24	4,14	4,05	-1,7381	-1,7445	-1,7510	3,39(12)	3,50(12)	3,61(12)
		4,05225688[b]	3,95311366[b]	3,85705994[b]	-1,36007[b]	-1,36041[b]	-1,36075[b]	8,86(12)[b]	9,31(12)[b]	9,77(12)[b]
$5s_{1/2}$	$9p_{1/2}$	3,74	3,66	3,58	-2,9470	-2,9849	-3,0241	2,69(11)	2,58(11)	2,47(11)
		3,5830515[b]	3,49569164[b]	3,41105565[b]	-1,62494[b]	-1,62532[b]	-1,6257[b]	6,16(12)[b]	6,47(12)[b]	6,79(12)[b]

Tablo 3.3. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			$A_{ki}(s^{-1})$		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$6d_{3/2}$	$4f_{5/2}$	3,14	3,07	3,00	-2,1124	-2,1156	-2,1189	1,31(12)	1,36(12)	1,41(12)
		3,14900295[a]	3,08051984[a]	3,01423601[a]	-2,03434[a]	-2,03045[a]	-2,02653[a]	0,00(00)[a]	2,46(12)[a]	2,59(12)[a]
$6d_{3/2}$	$5f_{5/2}$	9,04	8,84	8,65	-0,7840	-0,7828	-0,7816	3,36(12)	3,52(12)	3,68(12)
		9,1110961[a]	8,91692673[a]	8,72901162[a]	-0,87195[a]	-0,86798[a]	-0,86398[a]	4,05(12)[a]	4,26(12)[a]	4,49(12)[a]
$6d_{3/2}$	$6f_{5/2}$	387,94	373,00	358,82	-0,3080	-0,3006	-0,2932	3,63(9)	4,00(9)	4,40(9)
		295,83945395[a]	282,60512732[a]	270,08339525[a]	-0,02093[a]	-0,01081[a]	-0,00079[a]	8,07(9)[a]	9,05(9)[a]	1,01(10)[a]
$6d_{3/2}$	$7f_{5/2}$	14,12	13,80	13,49	0,4483	0,4469	0,4455	1,57(13)	1,63(13)	1,70(13)
		13,96502702[a]	13,64206007[a]	13,32945029[a]	0,61964[a]	0,61768[a]	0,61569[a]	1,58(13)[a]	1,65(13)[a]	1,72(13)[a]
$6d_{3/2}$	$8f_{5/2}$	8,69	8,49	8,30	-0,1758	-0,1776	-0,1795	9,83(12)	1,02(13)	1,07(13)
		8,63092518[b]	8,43497445[b]	8,24530322[b]	0,04685[b]	0,0458[b]	0,04473[b]	1,11(13)[b]	1,16(13)[b]	1,21(13)[b]
$6d_{3/2}$	$9f_{5/2}$	6,88	6,72	6,57	-0,6658	-0,6701	-0,6745	5,08(12)	5,26(12)	5,44(12)
		6,84101271[b]	6,68669896[b]	6,53733027[b]	-0,312[b]	-0,31271[b]	-0,31342[b]	7,72(12)[b]	8,07(12)[b]	8,43(12)[b]
$6d_{3/2}$	$2p_{3/2}$	0,48	0,47	0,46	-2,3514	-2,3590	-2,3667	3,21(13)	3,30(13)	3,39(13)
		0,48114379[a]	0,4704277[a]	0,46005502[a]	-2,15283[a]	-2,15501[a]	-2,15722[a]	5,07(13)[a]	5,27(13)[a]	5,49(13)[a]
$6d_{3/2}$	$3p_{3/2}$	1,27	1,24	1,21	-1,7976	-1,8012	-1,8049	1,65(13)	1,72(13)	1,78(13)
		1,26678456[a]	1,23820625[a]	1,21054367[a]	-1,67884[a]	-1,67956[a]	-1,68028[a]	2,18(13)[a]	2,27(13)[a]	2,38(13)[a]
$6d_{3/2}$	$4p_{3/2}$	3,05	2,98	2,91	-1,2975	-1,2991	-1,3008	9,05(12)	9,43(12)	9,83(12)
		3,03979073[a]	2,97120262[a]	2,90481227[a]	-1,23669[a]	-1,23693[a]	-1,23718[a]	1,05(13)[a]	1,09(13)[a]	1,14(13)[a]
$6d_{3/2}$	$5p_{3/2}$	8,69	8,50	8,31	-0,6223	-0,6227	-0,6231	5,27(12)	5,51(12)	5,75(12)
		8,65020648[a]	8,45535917[a]	8,26675552[a]	-0,60422[a]	-0,60426[a]	-0,60431[a]	5,54(12)[a]	5,80(12)[a]	6,07(12)[a]
$6d_{3/2}$	$6p_{3/2}$	4182,44	3935,25	3705,53	-2,2321	-2,2154	-2,1989	5,59(5)	6,56(5)	7,68(5)
$6d_{3/2}$	$7p_{3/2}$	14,39	14,07	13,76	-1,4242	-1,4266	-1,4291	3,03(11)	3,15(11)	3,28(11)
		14,39209619[a]	14,06896644[a]	13,75619179[a]	-1,335[a]	-1,33513[a]	-1,33526[a]	3,72(11)[a]	3,89(11)[a]	4,07(11)[a]

Tablo 3.3. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			$A_{ki}(s^{-1})$		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$6d_{3/2}$	$8p_{3/2}$	8,75	8,55	8,37	-2,3177	-2,3262	-2,3347	1,05(11)	1,08(11)	1,10(11)
		8,73808474[b]	8,54213803[b]	8,35247086[b]	-1,99363[b]	-1,99374[b]	-1,99385[b]	2,22(11)[b]	2,32(11)[b]	2,42(11)[b]
$6d_{3/2}$	$9p_{3/2}$	6,90	6,75	6,60	-4,3930	-4,5531	-4,7503	1,42(9)	1,03(9)	6,81(8)
		6,88795436[b]	6,73364858[b]	6,58428796[b]	-2,39219[b]	-2,39229[b]	-2,39239[b]	1,42(11)[b]	1,49(11)[b]	1,56(11)[b]
$6d_{3/2}$	$2p_{1/2}$	0,42	0,41	0,40	-1,7940	-1,8084	-1,8232	1,50(14)	1,52(14)	1,55(14)
		0,41191756[a]	0,40096736[a]	0,39035399[a]	-1,06327[a]	-1,06399[a]	-1,06475[a]	4,25(14)[a]	4,48(14)[a]	4,71(14)[a]
$6d_{3/2}$	$3p_{1/2}$	1,17	1,14	1,12	-1,2051	-1,2115	-1,2180	7,59(13)	7,85(13)	8,11(13)
		1,11906955[a]	1,08994154[a]	1,06171379[a]	-0,74591[a]	-0,7501[a]	-0,75448[a]	1,20(14)[a]	1,25(14)[a]	1,30(14)[a]
$6d_{3/2}$	$4p_{1/2}$	2,85	2,78	2,72	-0,7148	-0,7184	-0,7220	3,96(13)	4,12(13)	4,28(13)
		3,16063286[a]	2,61557858[a]	2,54795607[a]	-1,59152[a]	-0,44057[a]	-0,44886[a]	1,71(13)[a]	4,42(13)[a]	4,57(13)[a]
$6d_{3/2}$	$5p_{1/2}$	8,00	7,81	7,63	-0,0904	-0,0927	-0,0950	2,12(13)	2,21(13)	2,30(13)
		7,26945705[a]	7,07203456[a]	6,88077608[a]	0,00531[a]	-0,00889[a]	-0,02368[a]	1,60(13)[a]	1,63(13)[a]	1,67(13)[a]
$6d_{3/2}$	$6p_{1/2}$	207,76	201,70	195,94	-0,2221	-0,2189	-0,2159	2,32(10)	2,48(10)	2,64(10)
		79,50589682[a]	75,4849337[a]	71,68836719[a]	0,46964[a]	0,48133[a]	0,49293[a]	3,89(11)[a]	4,43(11)[a]	5,05(11)[a]
$6d_{3/2}$	$7p_{1/2}$	14,99	14,66	14,34	-0,5063	-0,5068	-0,5074	4,62(12)	4,83(12)	5,04(12)
		16,22662271[a]	15,92195338[a]	15,62832553[a]	-0,46862[a]	-0,45872[a]	-0,44872[a]	8,61(12)[a]	9,15(12)[a]	9,72(12)[a]
$6d_{3/2}$	$8p_{1/2}$	8,88	8,68	8,49	-1,4182	-1,4236	-1,4291	1,62(12)	1,67(12)	1,72(12)
		9,15631788[b]	8,96353491[b]	8,77713536[b]	-1,22055[b]	-1,21358[b]	-1,2066[b]	4,79(12)[b]	5,08(12)[b]	5,38(12)[b]
$6d_{3/2}$	$9p_{1/2}$	6,94	6,79	6,64	-2,8711	-2,9232	-2,9789	9,31(10)	8,64(10)	7,94(10)
		7,06564665[b]	6,9125508[b]	6,76443842[b]	-1,64498[b]	-1,6388[b]	-1,63264[b]	3,03(12)[b]	3,21(12)[b]	3,40(12)[b]
$6d_{5/2}$	$4f_{7/2}$	3,17	3,10	3,03	-1,9114	-1,9123	-1,9132	1,36(12)	1,42(12)	1,48(12)
		3,16924373[a]	3,10073247[a]	3,03442[a]	-1,91546[a]	-1,91325[a]	-1,91103[a]	1,79(12)[a]	1,88(12)[a]	1,98(12)[a]

Tablo 3.3. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			$A_{ki}(s^{-1})$		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$6d_{5/2}$	$5f_{7/2}$	9,04	8,85	8,66	-0,6681	-0,6671	-0,6660	2,92(12)	3,06(12)	3,20(12)
		9,06185627[a]	8,86730393[a]	8,67899926[a]	-0,75592[a]	-0,75381[a]	-0,75168[a]	3,17(12)[a]	3,32(12)[a]	3,49(12)[a]
$6d_{5/2}$	$6f_{7/2}$	698,06	669,44	642,33	-0,4087	-0,4001	-0,3916	6,68(8)	7,41(8)	8,20(8)
		619,68809702[a]	592,60939752[a]	566,97547249[a]	-0,23589[a]	-0,22617[a]	-0,21654[a]	9,46(8)[a]	1,06(9)[a]	1,18(9)[a]
$6d_{5/2}$	$7f_{7/2}$	14,48	14,15	13,84	0,6371	0,6362	0,6354	1,73(13)	1,80(13)	1,88(13)
		14,4417378[a]	14,11887661[a]	13,8063742[a]	0,76574[a]	0,76488[a]	0,76402[a]	1,75(13)[a]	1,83(13)[a]	1,91(13)[a]
$6d_{5/2}$	$8f_{7/2}$	8,85	8,65	8,46	0,0146	0,0134	0,0123	1,10(13)	1,15(13)	1,20(13)
		8,83681034[b]	8,64099696[b]	8,451465[b]	0,17166[b]	0,1712[b]	0,17074[b]	1,19(13)[b]	1,24(13)[b]	1,30(13)[b]
$6d_{5/2}$	$9f_{7/2}$	6,99	6,83	6,68	-0,4329	-0,4357	-0,4385	6,31(12)	6,55(12)	6,80(12)
		6,97959149[b]	6,82538728[b]	6,67612967[b]	-0,19571[b]	-0,19603[b]	-0,19635[b]	8,18(12)[b]	8,55(12)[b]	8,93(12)[b]
$6d_{5/2}$	$4f_{5/2}$	3,11	3,04	2,98	-3,4344	-3,4415	-3,4488	4,22(10)	4,34(10)	4,46(10)
		3,11583706[a]	3,04730291[a]	2,98096725[a]	-3,18846[a]	-3,18824[a]	-3,18802[a]	7,42(10)[a]	7,76(10)[a]	8,11(10)[a]
$6d_{5/2}$	$5f_{5/2}$	8,83	8,63	8,44	-2,0875	-2,0891	-2,0908	1,17(11)	1,22(11)	1,27(11)
		8,83888124[a]	8,64418036[a]	8,4557252[a]	-2,03007[a]	-2,03005[a]	-2,03003[a]	1,33(11)[a]	1,39(11)[a]	1,45(11)[a]
$6d_{5/2}$	$6f_{5/2}$	12976,15	12158,02	11399,73	-2,9864	-2,9678	-2,9495	6,81(3)	8,10(3)	9,61(3)
$6d_{5/2}$	$7f_{5/2}$	14,67	14,34	14,03	-0,6355	-0,6357	-0,6360	1,20(12)	1,25(12)	1,31(12)
		13,96502702[a]	14,33399821[a]	14,0214523[a]	0,61964[a]	-0,62496[a]	-1,78258[a]	1,58(13)[a]	1,28(12)[a]	9,33(10)[a]
$6d_{5/2}$	$8f_{5/2}$	8,89	8,70	8,51	-1,2842	-1,2853	-1,2863	7,31(11)	7,62(11)	7,94(11)
		8,89029377[b]	8,69448043[b]	8,5049485[b]	-1,24016[b]	-1,24028[b]	-1,2404[b]	8,09(11)[b]	8,46(11)[b]	8,84(11)[b]
$6d_{5/2}$	$9f_{5/2}$	7,00	6,85	6,70	-1,7516	-1,7546	-1,7577	4,02(11)	4,17(11)	4,33(11)
		7,00294941[b]	6,84874664[b]	6,69949049[b]	-1,61626[b]	-1,61643[b]	-1,61661[b]	5,49(11)[b]	5,73(11)[b]	5,99(11)[b]
$6d_{5/2}$	$2p_{3/2}$	0,48	0,47	0,46	-1,2675	-1,2717	-1,2759	2,60(14)	2,70(14)	2,79(14)
		0,48036254[a]	0,46964592[a]	0,45927271[a]	-0,95794[a]	-0,9585[a]	-0,95906[a]	3,54(14)[a]	3,70(14)[a]	3,86(14)[a]

Tablo 3.3. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			$A_{ki}(s^{-1})$		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$6d_{5/2}$	$3p_{3/2}$	1,26	1,24	1,21	-0,8026	-0,8053	-0,8080	1,10(14)	1,14(14)	1,19(14)
		1,26138332[a]	1,23280484[a]	1,20514209[a]	-0,54477[a]	-0,54543[a]	-0,5461[a]	1,33(14)[a]	1,39(14)[a]	1,45(14)[a]
$6d_{5/2}$	$4p_{3/2}$	3,02	2,96	2,89	-0,3544	-0,3562	-0,3581	5,38(13)	5,61(13)	5,84(13)
		3,00887414[a]	2,94028954[a]	2,87390275[a]	-0,1421[a]	-0,14327[a]	-0,14445[a]	5,90(13)[a]	6,16(13)[a]	6,43(13)[a]
$6d_{5/2}$	$5p_{3/2}$	8,50	8,30	8,12	0,2670	0,2654	0,2637	2,85(13)	2,97(13)	3,10(13)
		8,40446391[a]	8,20972947[a]	8,02124013[a]	0,43677[a]	0,43451[a]	0,43222[a]	2,87(13)[a]	2,99(13)[a]	3,12(13)[a]
$6d_{5/2}$	$6p_{3/2}$	413,97	398,55	383,91	-0,2653	-0,2584	-0,2517	3,52(9)	3,86(9)	4,23(9)
		295,83945395[a]	282,60512732[a]	270,08339525[a]	0,04858[a]	0,0586[a]	0,06852[a]	9,47(9)[a]	1,06(10)[a]	1,19(10)[a]
$6d_{5/2}$	$7p_{3/2}$	14,96	14,64	14,32	-0,3084	-0,3079	-0,3073	3,66(12)	3,83(12)	4,01(12)
		15,12805063[a]	14,80605829[a]	14,49443888[a]	-0,39384[a]	-0,39048[a]	-0,38709[a]	4,41(12)[a]	4,64(12)[a]	4,88(12)[a]
$6d_{5/2}$	$8p_{3/2}$	8,96	8,76	8,57	-1,1160	-1,1186	-1,1213	1,59(12)	1,65(12)	1,72(12)
		9,00403306[b]	8,80838384[b]	8,61901853[b]	-1,0777[b]	-1,07494[b]	-1,07215[b]	2,58(12)[b]	2,71(12)[b]	2,85(12)[b]
$6d_{5/2}$	$9p_{3/2}$	7,03	6,87	6,72	-2,0031	-2,0200	-2,0374	3,35(11)	3,37(11)	3,38(11)
		7,05214772[b]	6,89800781[b]	6,74881545[b]	-1,4834[b]	-1,4808[b]	-1,47818[b]	1,65(12)[b]	1,74(12)[b]	1,83(12)[b]
$6g_{7/2}$	$4f_{7/2}$	3,15	3,08	3,02	-1,4212	-1,4219	-1,4226	3,18(12)	3,32(12)	3,46(12)
		3,15311788[a]	3,08459284[a]	3,01826641[a]	-1,41669[a]	-1,41724[a]	-1,4178[a]	3,21(12)[a]	3,35(12)[a]	3,50(12)[a]
$6g_{7/2}$	$5f_{7/2}$	8,93	8,74	8,55	-0,5849	-0,5850	-0,5852	2,72(12)	2,84(12)	2,97(12)
		8,9312523[a]	8,7365772[a]	8,54814815[a]	-0,58429[a]	-0,5844[a]	-0,58452[a]	2,72(12)[a]	2,84(12)[a]	2,97(12)[a]
$6g_{7/2}$	$6f_{7/2}$	39686,66	37126,90	34756,65	-3,7307	-3,7115	-3,6924	9,84(1)	1,18(2)	1,40(2)
$6g_{7/2}$	$7f_{7/2}$	14,78	14,45	14,14	-2,2878	-2,2889	-2,2900	1,97(10)	2,05(10)	2,14(10)
		14,78633102	14,4634677	14,15	-2,2454	-2,2453	-0,6106	2,17(10)	2,27(10)	1,02(12)
$6g_{7/2}$	$8f_{7/2}$	8,96	8,76	8,57	-3,2182	-3,2239	-3,2296	6,28(9)	6,48(9)	6,68(9)
$6g_{7/2}$	$9f_{7/2}$	7,06	6,90	6,75	-4,8693	-4,9497	-5,0393	2,26(8)	1,97(8)	1,67(8)

Tablo 3.3. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			$A_{ki}(s^{-1})$		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$6g_{7/2}$	$4f_{5/2}$	3,10	3,03	2,96	0,0320	0,0318	0,0316	9,34(13)	9,77(13)	1,02(14)
		3,10024878[a]	3,0317133[a]	2,9653763[a]	0,16233[a]	0,16229[a]	0,16225[a]	9,45(13)[a]	9,89(13)[a]	1,03(14)[a]
$6g_{7/2}$	$5f_{5/2}$	8,72	8,52	8,34	0,8293	0,8288	0,8283	7,40(13)	7,74(13)	8,08(13)
		8,71458137[a]	8,51990359[a]	8,33147179[a]	0,95455[a]	0,95404[a]	0,95352[a]	7,42(13)[a]	7,75(13)[a]	8,09(13)[a]
$6g_{7/2}$	$6f_{5/2}$	673,66	645,54	618,89	-0,5223	-0,5133	-0,5045	5,52(8)	6,14(8)	6,81(8)
		619,68809702[a]	592,60939752[a]	566,97547249[a]	-0,36435[a]	-0,35458[a]	-0,34491[a]	7,04(8)[a]	7,87(8)[a]	8,79(8)[a]
$6g_{7/2}$	$7f_{5/2}$	14,98	14,65	14,34	-0,7638	-0,7630	-0,7622	8,54(11)	8,94(11)	9,35(11)
		15,01196639[a]	14,68930211[a]	14,37699926[a]	-0,83805[a]	-0,83585[a]	-0,83363[a]	9,55(11)[a]	1,00(12)[a]	1,05(12)[a]
$6g_{7/2}$	$8f_{5/2}$	9,01	8,81	8,62	-1,6950	-1,6985	-1,7020	2,77(11)	2,87(11)	2,97(11)
$6g_{7/2}$	$9f_{5/2}$	7,07	6,92	6,77	-3,1394	-3,1901	-3,2444	1,61(10)	1,50(10)	1,38(10)
$6g_{9/2}$	$4f_{7/2}$	3,14	3,07	3,01	0,1434	0,1432	0,1430	9,39(13)	9,81(13)	1,02(14)
		3,14370451[a]	3,07517731[a]	3,00884869[a]	0,24225[a]	0,24211[a]	0,24196[a]	9,43(13)[a]	9,85(13)[a]	1,03(14)[a]
$6g_{9/2}$	$5f_{7/2}$	8,86	8,66	8,47	0,9515	0,9512	0,9509	7,61(13)	7,95(13)	8,30(13)
		8,85613842[a]	8,66146516[a]	8,47303795[a]	1,04797[a]	1,04766[a]	1,04735[a]	7,60(13)[a]	7,94(13)[a]	8,29(13)[a]
$6g_{9/2}$	$6f_{7/2}$	1091,58	1045,24	1001,36	-0,6194	-0,6102	-0,6010	1,34(8)	1,50(8)	1,67(8)
		1053,01988031[a]	1007,44904141[a]	964,30026811[a]	-0,50891[a]	-0,4993[a]	-0,4898[a]	1,49(8)[a]	1,67(8)[a]	1,86(8)[a]
$6g_{9/2}$	$7f_{7/2}$	14,98	14,66	14,35	-0,6670	-0,6663	-0,6657	7,99(11)	8,36(11)	8,74(11)
		14,99691522[a]	14,67413732[a]	14,36171927[a]	-0,73597[a]	-0,73459[a]	-0,73319[a]	8,51(11)[a]	8,92(11)[a]	9,34(11)[a]
$6g_{9/2}$	$8f_{7/2}$	9,04	8,84	8,65	-1,5338	-1,5357	-1,5377	2,99(11)	3,11(11)	3,23(11)
$6g_{9/2}$	$9f_{7/2}$	7,10	6,95	6,80	-2,4745	-2,4917	-2,5095	5,54(10)	5,57(10)	5,58(10)
$6s_{1/2}$	$2p_{3/2}$	0,48	0,47	0,46	-5,4136	-6,2500	-6,6346	5,54(10)	8,45(9)	3,64(9)
		0,48407324	0,47337783	0,46	-2,5631	-2,5579	-2,5528	7,78(13)[a]	8,24(13)[a]	8,71(13)[a]

Tablo 3.3. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			$A_{ki}(s^{-1})$		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$6s_{1/2}$	$3p_{3/2}$	1,27	1,25	1,22	-2,3025	-2,3169	-2,3318	1,02(13)	1,04(13)	1,05(13)
		1,28729531[a]	1,25885571[a]	1,23133625[a]	-1,89633[a]	-1,89098[a]	-1,88568[a]	5,11(13)[a]	5,41(13)[a]	5,72(13)[a]
$6s_{1/2}$	$4p_{3/2}$	3,08	3,02	2,95	-1,3516	-1,3551	-1,3587	1,56(13)	1,62(13)	1,68(13)
		3,16063286[a]	3,09294571[a]	3,02748598[a]	-1,27804[a]	-1,27204[a]	-1,26605[a]	3,52(13)[a]	3,73(13)[a]	3,94(13)[a]
$6s_{1/2}$	$5p_{3/2}$	9,00	8,80	8,61	-0,4072	-0,4076	-0,4080	1,61(13)	1,69(13)	1,76(13)
		9,70624124[a]	9,52194954[a]	9,34429432[a]	-0,4072[a]	-0,39819[a]	-0,38909[a]	2,77(13)[a]	2,94(13)[a]	3,12(13)[a]
$6s_{1/2}$	$6p_{3/2}$	239,76	233,30	227,15	-0,2506	-0,2484	-0,2464	1,63(10)	1,73(10)	1,83(10)
		79,50589682[a]	75,4849337[a]	71,68836719[a]	0,49172[a]	0,5029[a]	0,51398[a]	4,09(11)[a]	4,66(11)[a]	5,30(11)[a]
$6s_{1/2}$	$7p_{3/2}$	13,62	13,31	13,02	-0,2489	-0,2506	-0,2524	5,07(12)	5,28(12)	5,50(12)
		12,18616584[a]	11,85872416[a]	11,54150645[a]	-0,28476[a]	-0,30562[a]	-0,32748[a]	2,91(12)[a]	2,93(12)[a]	2,94(12)[a]
$6s_{1/2}$	$8p_{3/2}$	8,46	8,27	8,09	-0,9252	-0,9290	-0,9327	2,77(12)	2,87(12)	2,98(12)
		7,87282318[b]	7,67374978[b]	7,48086867[b]	-0,74009[b]	-0,75599[b]	-0,77265[b]	2,45(12)[b]	2,48(12)[b]	2,51(12)[b]
$6s_{1/2}$	$9p_{3/2}$	6,72	6,57	6,42	-1,7234	-1,7364	-1,7496	6,99(11)	7,10(11)	7,20(11)
		6,33879589[b]	6,18216713[b]	6,03041831[b]	-1,04893[b]	-1,06298[b]	-1,07771[b]	1,85(12)[b]	1,89(12)[b]	1,92(12)[b]
$6s_{1/2}$	$2p_{1/2}$	0,42	0,41	0,40	-2,0962	-2,0687	-2,0418	1,49(14)	1,67(14)	1,87(14)
		0,41406281[a]	0,40310863[a]	0,39249117[a]	-2,93954[a]	-2,94061[a]	-2,94171[a]	2,24(13)[a]	2,35(13)[a]	2,48(13)[a]
$6s_{1/2}$	$3p_{1/2}$	1,18	1,15	1,12	-3,4841	-3,3977	-3,3188	7,91(11)	1,01(12)	1,27(12)
		1,13504566[a]	1,10590999[a]	1,07767428[a]	-2,24589[a]	-2,24675[a]	-2,24764[a]	1,47(13)[a]	1,55(13)[a]	1,62(13)[a]
$6s_{1/2}$	$4p_{1/2}$	2,88	2,81	2,75	-2,1966	-2,2126	-2,2289	2,55(12)	2,58(12)	2,60(12)
		2,77923569[a]	2,70946237[a]	2,64185311[a]	-1,63181[a]	-1,6325[a]	-1,63322[a]	1,01(13)[a]	1,06(13)[a]	1,11(13)[a]
$6s_{1/2}$	$5p_{1/2}$	8,26	8,07	7,88	-1,0081	-1,0121	-1,0162	4,80(12)	4,99(12)	5,17(12)
		8,00101311[a]	7,80309075[a]	7,61132444[a]	-0,84728[a]	-0,84786[a]	-0,84846[a]	7,41(12)[a]	7,78(12)[a]	8,16(12)[a]
$6s_{1/2}$	$6p_{1/2}$	1134,44	1080,43	1029,79	-1,2336	-1,2221	-1,2109	1,51(8)	1,71(8)	1,94(8)

Tablo 3.3. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			$A_{ki}(s^{-1})$		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$6s_{1/2}$	$7p_{1/2}$	14,16	13,84	13,54	-0,3905	-0,3909	-0,3913	6,77(12)	7,07(12)	7,39(12)
		13,47621683[a]	13,1485453[a]	12,83109912[a]	-0,35566[a]	-0,35588[a]	-0,3561[a]	8,10(12)[a]	8,50(12)[a]	8,92(12)[a]
$6s_{1/2}$	$8p_{1/2}$	8,58	8,38	8,20	-1,1305	-1,1331	-1,1356	3,36(12)	3,49(12)	3,63(12)
		8,21072727[b]	8,0121268[b]	7,81972998[b]	-0,95096[b]	-0,95121[b]	-0,95146[b]	5,54(12)[b]	5,81(12)[b]	6,10(12)[b]
$6s_{1/2}$	$9p_{1/2}$	6,76	6,61	6,46	-1,9299	-1,9401	-1,9503	8,58(11)	8,77(11)	8,95(11)
		6,48897491[b]	6,33263797[b]	6,18118806[b]	-1,31244[b]	-1,31272[b]	-1,313[b]	3,86(12)[b]	4,05(12)[b]	4,25(12)[b]
$7d_{3/2}$	$4f_{5/2}$	2,58	2,52	2,47	-2,9832	-3,0016	-3,0208	2,61(11)	2,61(11)	2,61(11)
		2,58368948[a]	2,52717368[a]	2,47247173[a]	-2,48283[a]	-2,47901[a]	-2,47516[a]	1,23(12)[a]	1,30(12)[a]	1,37(12)[a]
$7d_{3/2}$	$5f_{5/2}$	5,56	5,43	5,32	-1,6777	-1,6808	-1,6840	1,13(12)	1,18(12)	1,22(12)
		5,57914729[a]	5,45777978[a]	5,34031006[a]	-1,60948[a]	-1,60597[a]	-1,60244[a]	1,97(12)[a]	2,08(12)[a]	2,19(12)[a]
$7d_{3/2}$	$6f_{5/2}$	14,98	14,65	14,34	-0,5579	-0,5572	-0,5566	2,06(12)	2,15(12)	2,25(12)
		15,12805063[a]	14,80605829[a]	14,49443888[a]	-0,63422[a]	-0,63047[a]	-0,62668[a]	2,54(12)[a]	2,67(12)[a]	2,81(12)[a]
$7d_{3/2}$	$7f_{5/2}$	671,87	647,14	623,65	-0,2392	-0,2325	-0,2258	1,42(9)	1,55(9)	1,70(9)
		470,61699657[a]	449,5826294[a]	429,68043706[a]	0,08291[a]	0,09303[a]	0,10305[a]	4,05(9)[a]	4,54(9)[a]	5,09(9)[a]
$7d_{3/2}$	$8f_{5/2}$	21,85	21,36	20,89	0,4411	0,4396	0,4381	6,43(12)	6,70(12)	6,99(12)
		21,56108632[b]	21,06346134[b]	20,58179386[b]	0,61459[b]	0,61242[b]	0,6102[b]	6,56(12)[b]	6,84(12)[b]	7,13(12)[b]
$7d_{3/2}$	$9f_{5/2}$	13,14	12,85	12,56	-0,2253	-0,2282	-0,2312	3,83(12)	3,98(12)	4,14(12)
		13,03872659[b]	12,74336692[b]	12,45747253[b]	0,0525[b]	0,05124[b]	0,04996[b]	4,92(12)[b]	5,14(12)[b]	5,36(12)[b]
$7d_{3/2}$	$2p_{3/2}$	0,47	0,46	0,45	-2,7335	-2,7454	-2,7576	1,42(13)	1,45(13)	1,47(13)
		0,46557897[a]	0,45520683[a]	0,44516708[a]	-2,4028[a]	-2,40512[a]	-2,40748[a]	3,04(13)[a]	3,17(13)[a]	3,29(13)[a]
$7d_{3/2}$	$3p_{3/2}$	1,17	1,14	1,11	-2,1827	-2,1888	-2,1950	8,06(12)	8,32(12)	8,58(12)
		1,16430322[a]	1,13804701[a]	1,11263214[a]	-1,97071[a]	-1,97154[a]	-1,97239[a]	1,32(13)[a]	1,37(13)[a]	1,44(13)[a]

Tablo 3.3. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			$A_{ki}(s^{-1})$		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$7d_{3/2}$	$4p_{3/2}$	2,52	2,46	2,41	-1,7451	-1,7484	-1,7517	4,74(12)	4,92(12)	5,11(12)
		2,50970883[a]	2,45313[a]	2,39836414[a]	-1,61671[a]	-1,61706[a]	-1,61742[a]	6,40(12)[a]	6,69(12)[a]	7,00(12)[a]
$7d_{3/2}$	$5p_{3/2}$	5,42	5,30	5,18	-1,2766	-1,2782	-1,2798	3,00(12)	3,13(12)	3,26(12)
		5,40287164[a]	5,28131969[a]	5,16366283[a]	-1,20817[a]	-1,20831[a]	-1,20846[a]	3,54(12)[a]	3,70(12)[a]	3,87(12)[a]
$7d_{3/2}$	$6p_{3/2}$	14,47	14,15	13,84	-0,6082	-0,6087	-0,6091	1,96(12)	2,05(12)	2,14(12)
		14,39209619[a]	14,06896644[a]	13,75619179[a]	-0,58574[a]	-0,58578[a]	-0,58582[a]	2,09(12)[a]	2,19(12)[a]	2,29(12)[a]
$7d_{3/2}$	$7p_{3/2}$	7085,32	6679,51	6301,85	-2,1734	-2,1574	-2,1417	2,23(5)	2,60(5)	3,03(5)
$7d_{3/2}$	$8p_{3/2}$	22,25	21,75	21,27	-1,3136	-1,3162	-1,3188	1,64(11)	1,70(11)	1,77(11)
		22,24250115[b]	21,74466883[b]	21,26279141[b]	-1,20902[b]	-1,20914[b]	-1,20927[b]	2,08(11)[b]	2,18(11)[b]	2,28(11)[b]
$7d_{3/2}$	$9p_{3/2}$	13,23	12,93	12,65	-2,4214	-2,4358	-2,4504	3,61(10)	3,66(10)	3,69(10)
		13,21031825[b]	12,91497897[b]	12,6291052[b]	-1,86265[b]	-1,86276[b]	-1,86288[b]	1,31(11)[b]	1,37(11)[b]	1,43(11)[b]
$7d_{3/2}$	$2p_{1/2}$	0,41	0,40	0,39	-2,4981	-2,5363	-2,5769	3,14(13)	3,02(13)	2,89(13)
		0,40045607[a]	0,3898564[a]	0,37958273[a]	-1,29963[a]	-1,30013[a]	-1,30069[a]	2,61(14)[a]	2,75(14)[a]	2,90(14)[a]
$7d_{3/2}$	$3p_{1/2}$	1,08	1,06	1,03	-1,6739	-1,6857	-1,6977	3,02(13)	3,08(13)	3,14(13)
		1,03833308[a]	1,01157359[a]	0,98564122[a]	-1,01133[a]	-1,0149[a]	-1,01864[a]	7,53(13)[a]	7,87(13)[a]	8,22(13)[a]
$7d_{3/2}$	$4p_{1/2}$	2,38	2,32	2,27	-1,1794	-1,1853	-1,1912	1,95(13)	2,01(13)	2,08(13)
		2,26310179[a]	2,20554335[a]	2,14977027[a]	-0,75865[a]	-0,7651[a]	-0,77184[a]	2,84(13)[a]	2,94(13)[a]	3,05(13)[a]
$7d_{3/2}$	$5p_{1/2}$	5,14	5,03	4,91	-0,7032	-0,7065	-0,7098	1,25(13)	1,30(13)	1,35(13)
		4,82988103[a]	4,70631532[a]	4,5865883[a]	-0,45542[a]	-0,46524[a]	-0,47549[a]	1,25(13)[a]	1,29(13)[a]	1,33(13)[a]
$7d_{3/2}$	$6p_{1/2}$	13,48	13,18	12,88	-0,0697	-0,0716	-0,0736	7,81(12)	8,14(12)	8,49(12)
		12,18616584[a]	11,85872416[a]	11,54150645[a]	-0,01441[a]	-0,0303[a]	-0,04686[a]	5,43(12)[a]	5,53(12)[a]	5,62(12)[a]
$7d_{3/2}$	$7p_{1/2}$	376,86	366,62	356,87	-0,1942	-0,1918	-0,1895	7,51(9)	7,98(9)	8,46(9)
		127,29993943[a]	120,88883227[a]	114,8348747[a]	0,54873[a]	0,56034[a]	0,57187[a]	1,82(11)[a]	2,07(11)[a]	2,36(11)[a]

Tablo 3.3. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			$A_{ki}(s^{-1})$		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$7d_{3/2}$	$8p_{1/2}$	23,09	22,57	22,08	-0,4234	-0,4244	-0,4256	2,36(12)	2,46(12)	2,57(12)
		25,16886694[b]	24,70068814[b]	24,24956595[b]	-0,35528[b]	-0,34559[b]	-0,33581[b]	4,65(12)[b]	4,93(12)[b]	5,24(12)[b]
$7d_{3/2}$	$9p_{1/2}$	13,39	13,10	12,81	-1,5042	-1,5138	-1,5236	5,82(11)	5,96(11)	6,09(11)
		13,87977432[b]	13,58954678[b]	13,30895233[b]	-1,1045[b]	-1,0978[b]	-1,09111[b]	2,72(12)[b]	2,88(12)[b]	3,05(12)[b]
$7d_{5/2}$	$4f_{7/2}$	2,60	2,55	2,49	-2,5481	-2,5542	-2,5605	4,64(11)	4,78(11)	4,92(11)
		2,60579577[a]	2,54927332[a]	2,4945646[a]	-2,36246[a]	-2,36025[a]	-2,35804[a]	9,48(11)[a]	9,95(11)[a]	1,04(12)[a]
$7d_{5/2}$	$5f_{7/2}$	5,59	5,47	5,35	-1,4865	-1,4878	-1,4892	1,16(12)	1,21(12)	1,26(12)
		5,59973415[a]	5,4783097[a]	5,36078209[a]	-1,48338[a]	-1,48145[a]	-1,47951[a]	1,55(12)[a]	1,63(12)[a]	1,71(12)[a]
$7d_{5/2}$	$6f_{7/2}$	14,97	14,65	14,33	-0,4343	-0,4336	-0,4329	1,82(12)	1,91(12)	2,00(12)
		15,01196639[a]	14,68930211[a]	14,37699926[a]	-0,51389[a]	-0,51193[a]	-0,50994[a]	2,01(12)[a]	2,11(12)[a]	2,22(12)[a]
$7d_{5/2}$	$7f_{7/2}$	1172,34	1125,67	1081,41	-0,3273	-0,3191	-0,3112	2,86(8)	3,16(8)	3,48(8)
		983,76376033[a]	940,77003572[a]	900,07035907[a]	-0,13137[a]	-0,12162[a]	-0,11198[a]	4,77(8)[a]	5,34(8)[a]	5,96(8)[a]
$7d_{5/2}$	$8f_{7/2}$	22,33	21,83	21,35	0,6321	0,6311	0,6302	7,17(12)	7,48(12)	7,80(12)
		22,25398932[b]	21,7565445[b]	21,27505988[b]	0,76516[b]	0,76421[b]	0,76325[b]	7,35(12)[b]	7,68(12)[b]	8,01(12)[b]
$7d_{5/2}$	$9f_{7/2}$	13,35	13,05	12,77	-0,0143	-0,0163	-0,0183	4,53(12)	4,71(12)	4,90(12)
		13,32487279[b]	13,02971882[b]	12,74403297[b]	0,18203[b]	0,18149[b]	0,18095[b]	5,36(12)[b]	5,59(12)[b]	5,84(12)[b]
$7d_{5/2}$	$4f_{5/2}$	2,57	2,51	2,46	-4,3806	-4,4099	-4,4406	7,02(9)	6,86(9)	6,68(9)
		2,56958246[a]	2,51304745[a]	2,45832601[a]	-3,63386[a]	-3,63359[a]	-3,63331[a]	3,91(10)[a]	4,09(10)[a]	4,28(10)[a]
$7d_{5/2}$	$5f_{5/2}$	5,51	5,39	5,27	-2,9719	-2,9782	-2,9846	3,91(10)	4,03(10)	4,15(10)
		5,51378161[a]	5,39231887[a]	5,27475247[a]	-2,7479[a]	-2,74782[a]	-2,74775[a]	6,53(10)[a]	6,83(10)[a]	7,14(10)[a]
$7d_{5/2}$	$6f_{5/2}$	14,64	14,32	14,00	-1,8430	-1,8447	-1,8463	7,45(10)	7,76(10)	8,08(10)
		14,65690241[a]	14,33399821[a]	14,0214523[a]	-1,78253[a]	-1,78256[a]	-1,78258[a]	8,54(10)[a]	8,93(10)[a]	9,33(10)[a]
$7d_{5/2}$	$7f_{5/2}$	19733,90	18516,83	17387,70	-2,8598	-2,8418	-2,8240	3,94(3)	4,67(3)	5,51(3)

Tablo 3.3. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			$A_{ki}(s^{-1})$		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$7d_{5/2}$	$8f_{5/2}$	22,61	22,12	21,64	-0,6394	-0,6398	-0,6402	4,99(11)	5,21(11)	5,44(11)
		22,59632589[b]	22,0988162[b]	21,61726598[b]	-0,62113[b]	-0,62116[b]	-0,62118[b]	5,21(11)[b]	5,45(11)[b]	5,69(11)[b]
$7d_{5/2}$	$9f_{5/2}$	13,41	13,12	12,83	-1,3142	-1,3161	-1,3180	3,00(11)	3,12(11)	3,25(11)
		13,41026607[b]	13,11511327[b]	12,82942861[b]	-1,22473[b]	-1,22481[b]	-1,22489[b]	3,68(11)[b]	3,85(11)[b]	4,02(11)[b]
$7d_{5/2}$	$2p_{3/2}$	0,47	0,45	0,44	-1,6137	-1,6208	-1,6280	1,25(14)	1,29(14)	1,32(14)
		0,46511883[a]	0,4547464[a]	0,44470635[a]	-1,20222[a]	-1,20278[a]	-1,20334[a]	2,15(14)[a]	2,25(14)[a]	2,35(14)[a]
$7d_{5/2}$	$3p_{3/2}$	1,16	1,14	1,11	-1,1617	-1,1662	-1,1709	5,66(13)	5,86(13)	6,07(13)
		1,16142985[a]	1,1351735[a]	1,10975848[a]	-0,82782[a]	-0,82838[a]	-0,82896[a]	8,17(13)[a]	8,54(13)[a]	8,92(13)[a]
$7d_{5/2}$	$4p_{3/2}$	2,51	2,45	2,40	-0,7748	-0,7778	-0,7808	2,97(13)	3,09(13)	3,21(13)
		2,49639604[a]	2,43981724[a]	2,3850514[a]	-0,50613[a]	-0,50702[a]	-0,50792[a]	3,71(13)[a]	3,87(13)[a]	4,05(13)[a]
$7d_{5/2}$	$5p_{3/2}$	5,38	5,26	5,14	-0,3434	-0,3454	-0,3475	1,74(13)	1,82(13)	1,89(13)
		5,34154853[a]	5,21999952[a]	5,10234565[a]	-0,1272[a]	-0,12861[a]	-0,13004[a]	1,94(13)[a]	2,02(13)[a]	2,11(13)[a]
$7d_{5/2}$	$6p_{3/2}$	14,15	13,84	13,53	0,2801	0,2785	0,2769	1,06(13)	1,10(13)	1,15(13)
		13,96502702[a]	13,64206007[a]	13,32945029[a]	0,44681[a]	0,44433[a]	0,44181[a]	1,06(13)[a]	1,11(13)[a]	1,15(13)[a]
$7d_{5/2}$	$7p_{3/2}$	715,35	689,86	665,65	-0,2178	-0,2116	-0,2055	1,32(9)	1,44(9)	1,56(9)
		470,61699657[a]	449,5826294[a]	429,68043706[a]	0,13031[a]	0,14034[a]	0,15027[a]	4,52(9)[a]	5,07(9)[a]	5,67(9)[a]
$7d_{5/2}$	$8p_{3/2}$	23,04	22,54	22,05	-0,2080	-0,2079	-0,2079	1,95(12)	2,03(12)	2,12(12)
		23,34588428[b]	22,84983168[b]	22,36976194[b]	-0,27316[b]	-0,2699[b]	-0,2666[b]	2,45(12)[b]	2,57(12)[b]	2,71(12)[b]
$7d_{5/2}$	$9p_{3/2}$	13,50	13,21	12,92	-1,1271	-1,1327	-1,1383	6,83(11)	7,04(11)	7,27(11)
		13,59184418[b]	13,29695525[b]	13,01153846[b]	-0,95267[b]	-0,95002[b]	-0,94734[b]	1,51(12)[b]	1,59(12)[b]	1,67(12)[b]
$7g_{7/2}$	$4f_{7/2}$	2,60	2,54	2,49	-1,9376	-1,9388	-1,9400	1,43(12)	1,49(12)	1,55(12)
		2,59891176[a]	2,54238403[a]	2,48766997[a]	-1,91944[a]	-1,92018[a]	-1,92093[a]	1,49(12)[a]	1,55(12)[a]	1,62(12)[a]

Tablo 3.3. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			$A_{ki}(s^{-1})$		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$7g_{7/2}$	$5f_{7/2}$	5,57	5,45	5,33	-1,3178	-1,3183	-1,3189	1,29(12)	1,35(12)	1,41(12)
		5,56804001[a]	5,446593[a]	5,32904253[a]	-1,3067[a]	-1,30699[a]	-1,30728[a]	1,33(12)[a]	1,39(12)[a]	1,45(12)[a]
$7g_{7/2}$	$6f_{7/2}$	14,79	14,46	14,15	-0,6143	-0,6144	-0,6146	9,27(11)	9,68(11)	1,01(12)
		14,78633102[a]	14,4634677[a]	14,15096317[a]	-0,61045[a]	-0,6105[a]	-0,61056[a]	9,35(11)[a]	9,77(11)[a]	1,02(12)[a]
$7g_{7/2}$	$7f_{7/2}$	49722,83	46565,13	43639,32	-3,4741	-3,4552	-3,4366	1,13(2)	1,35(2)	1,60(2)
$7g_{7/2}$	$8f_{7/2}$	22,75	22,25	21,77	-2,0494	-2,0509	-2,0524	1,44(10)	1,50(10)	1,56(10)
$7g_{7/2}$	$9f_{7/2}$	13,50	13,20	12,92	-3,1525	-3,1645	-3,1768	3,22(9)	3,27(9)	3,33(9)
$7g_{7/2}$	$4f_{5/2}$	2,56	2,51	2,45	-0,4752	-0,4756	-0,4761	4,25(13)	4,44(13)	4,64(13)
		2,56288822[a]	2,50635231[a]	2,45162997[a]	-0,32846[a]	-0,32841[a]	-0,32836[a]	4,47(13)[a]	4,67(13)[a]	4,88(13)[a]
$7g_{7/2}$	$5f_{5/2}$	5,48	5,36	5,24	0,1189	0,1185	0,1180	3,65(13)	3,81(13)	3,98(13)
		5,4830503[a]	5,36158724[a]	5,24402053[a]	0,25682[a]	0,25669[a]	0,25655[a]	3,76(13)[a]	3,93(13)[a]	4,11(13)[a]
$7g_{7/2}$	$6f_{5/2}$	14,46	14,14	13,83	0,7927	0,7920	0,7913	2,47(13)	2,58(13)	2,70(13)
		14,4417378[a]	14,11887661[a]	13,8063742[a]	0,92016[a]	0,91951[a]	0,91885[a]	2,49(13)[a]	2,61(13)[a]	2,72(13)[a]
$7g_{7/2}$	$7f_{5/2}$	1131,79	1085,90	1042,41	-0,3943	-0,3858	-0,3774	2,63(8)	2,91(8)	3,22(8)
		983,76376033[a]	940,77003572[a]	900,07035907[a]	-0,21323[a]	-0,20345[a]	-0,19377[a]	3,95(8)[a]	4,42(8)[a]	4,94(8)[a]
$7g_{7/2}$	$8f_{5/2}$	23,05	22,55	22,07	-0,5342	-0,5341	-0,5339	6,12(11)	6,39(11)	6,68(11)
$7g_{7/2}$	$9f_{5/2}$	13,56	13,27	12,98	-1,6208	-1,6296	-1,6386	1,45(11)	1,48(11)	1,52(11)
$7g_{9/2}$	$4f_{7/2}$	2,59	2,54	2,48	-0,3616	-0,3620	-0,3625	4,31(13)	4,50(13)	4,69(13)
		2,59487331[a]	2,53834456[a]	2,48362945[a]	-0,25238[a]	-0,25252[a]	-0,25266[a]	4,43(13)[a]	4,63(13)[a]	4,84(13)[a]
$7g_{9/2}$	$5f_{7/2}$	5,55	5,43	5,31	0,2369	0,2366	0,2362	3,74(13)	3,90(13)	4,08(13)
		5,54953601[a]	5,42808732[a]	5,31053516[a]	0,34116[a]	0,34103[a]	0,34089[a]	3,80(13)[a]	3,97(13)[a]	4,15(13)[a]
$7g_{9/2}$	$6f_{7/2}$	14,66	14,34	14,03	0,9177	0,9173	0,9169	2,57(13)	2,68(13)	2,80(13)
		14,65655364[a]	14,33370079[a]	14,02120683[a]	1,01643[a]	1,01606[a]	1,01568[a]	2,58(13)[a]	2,70(13)[a]	2,81(13)[a]

Tablo 3.3. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			$A_{ki}(s^{-1})$		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$7g_{9/2}$	$7f_{7/2}$	1797,57	1722,69	1651,74	-0,4833	-0,4743	-0,4655	6,78(7)	7,54(7)	8,37(7)
		1669,91089064[a]	1597,59535952[a]	1529,12439798[a]	-0,35747[a]	-0,34785[a]	-0,33832[a]	8,40(7)[a]	9,39(7)[a]	1,05(8)[a]
$7g_{9/2}$	$8f_{7/2}$	23,05	22,56	22,07	-0,4295	-0,4293	-0,4291	5,84(11)	6,10(11)	6,37(11)
$7g_{9/2}$	$9f_{7/2}$	13,60	13,31	13,02	-1,3929	-1,3982	-1,4036	1,82(11)	1,88(11)	1,94(11)
$7s_{1/2}$	$2p_{3/2}$	0,47	0,46	0,45	-3,3941	-3,3369	-3,2824	6,20(12)	7,40(12)	8,77(12)
		0,467288[a]	0,45692739[a]	0,44689953[a]	-2,80566[a]	-2,80076[a]	-2,79595[a]	4,78(13)[a]	5,05(13)[a]	5,34(13)[a]
$7s_{1/2}$	$3p_{3/2}$	1,17	1,14	1,12	-3,3054	-3,3614	-3,4219	1,21(12)	1,11(12)	1,01(12)
		1,17505039[a]	1,1488624[a]	1,12351787[a]	-2,19446[a]	-2,18957[a]	-2,18473[a]	3,09(13)[a]	3,27(13)[a]	3,45(13)[a]
$7s_{1/2}$	$4p_{3/2}$	2,53	2,47	2,42	-1,9985	-2,0088	-2,0193	5,23(12)	5,34(12)	5,46(12)
		2,56018264[a]	2,50394109[a]	2,44952324[a]	-1,69299[a]	-1,68793[a]	-1,6829[a]	2,06(13)[a]	2,18(13)[a]	2,31(13)[a]
$7s_{1/2}$	$5p_{3/2}$	5,49	5,37	5,25	-1,2063	-1,2095	-1,2128	6,89(12)	7,15(12)	7,42(12)
		5,64234436[a]	5,52258721[a]	5,40678419[a]	-1,13999[a]	-1,1342[a]	-1,12842[a]	1,52(13)[a]	1,61(13)[a]	1,70(13)[a]
$7s_{1/2}$	$6p_{3/2}$	14,94	14,61	14,29	-0,3166	-0,3172	-0,3179	7,21(12)	7,53(12)	7,86(12)
		16,22662271[a]	15,92195338[a]	15,62832553[a]	-0,30196[a]	-0,29307[a]	-0,2841[a]	1,26(13)[a]	1,34(13)[a]	1,42(13)[a]
$7s_{1/2}$	$7p_{3/2}$	432,02	421,17	410,83	-0,2297	-0,2282	-0,2269	5,26(9)	5,56(9)	5,86(9)
		127,29993943[a]	120,88883227[a]	114,8348747[a]	0,56227[a]	0,57345[a]	0,58453[a]	1,88(11)[a]	2,14(11)[a]	2,43(11)[a]
$7s_{1/2}$	$8p_{3/2}$	21,22	20,75	20,29	-0,2086	-0,2103	-0,2118	2,29(12)	2,39(12)	2,49(12)
		18,93421719[b]	18,42966486[b]	17,94086597[b]	-0,26049[b]	-0,28224[b]	-0,30505[b]	1,28(12)[b]	1,28(12)[b]	1,28(12)[b]
$7s_{1/2}$	$9p_{3/2}$	12,86	12,57	12,29	-1,0170	-1,0224	-1,0277	9,70(11)	1,00(12)	1,04(12)
		11,96832702[b]	11,66840251[b]	11,37781603[b]	-0,71585[b]	-0,73252[b]	-0,75[b]	1,12(12)[b]	1,13(12)[b]	1,15(12)[b]
$7s_{1/2}$	$2p_{1/2}$	0,41	0,40	0,39	-1,8899	-1,8662	-1,8429	2,54(14)	2,82(14)	3,13(14)
		0,40171979[a]	0,39111773[a]	0,38084159[a]	-3,1752[a]	-3,17634[a]	-3,17752[a]	1,38(13)[a]	1,45(13)[a]	1,53(13)[a]

Tablo 3.3. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			$A_{ki}(s^{-1})$		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$7s_{1/2}$	$3p_{1/2}$	1,09	1,06	1,03	-2,5358	-2,5032	-2,4717	8,25(12)	9,33(12)	1,05(13)
		1,04687199[a]	1,02010967[a]	0,99417433[a]	-2,53043[a]	-2,53133[a]	-2,53225[a]	8,97(12)[a]	9,43(12)[a]	9,91(12)[a]
$7s_{1/2}$	$4p_{1/2}$	2,39	2,34	2,28	-3,8799	-4,0054	-4,1518	7,69(10)	6,03(10)	4,51(10)
		2,30406276[a]	2,50394109[a]	2,1907829[a]	-2,01612[a]	-1,68793[a]	-2,01754[a]	6,05(12)[a]	2,18(13)[a]	6,67(12)[a]
$7s_{1/2}$	$5p_{1/2}$	5,20	5,08	4,97	-1,9131	-1,9234	-1,9337	1,51(12)	1,54(12)	1,57(12)
		5,02035821[a]	4,8969585[a]	4,77740117[a]	-1,47648[a]	-1,47705[a]	-1,47764[a]	4,42(12)[a]	4,64(12)[a]	4,87(12)[a]
$7s_{1/2}$	$6p_{1/2}$	13,89	13,57	13,27	-0,8754	-0,8787	-0,8819	2,30(12)	2,39(12)	2,49(12)
		13,47621683[a]	13,1485453[a]	12,83109912[a]	-0,73119[a]	-0,73169[a]	-0,73219[a]	3,41(12)[a]	3,58(12)[a]	3,75(12)[a]
$7s_{1/2}$	$7p_{1/2}$	2083,64	1988,19	1898,54	-1,2181	-1,2074	-1,1968	4,65(7)	5,23(7)	5,88(7)
$7s_{1/2}$	$8p_{1/2}$	21,98	21,49	21,02	-0,3661	-0,3667	-0,3673	2,97(12)	3,10(12)	3,24(12)
		21,01410323[b]	20,50997446[b]	20,02162035[b]	-0,31412[b]	-0,31433[b]	-0,31454[b]	3,66(12)[b]	3,84(12)[b]	4,03(12)[b]
$7s_{1/2}$	$9p_{1/2}$	13,01	12,72	12,44	-1,2218	-1,2258	-1,2298	1,18(12)	1,22(12)	1,27(12)
		12,51521471[b]	12,21627189[b]	11,92669135[b]	-0,90994[b]	-0,91017[b]	-0,91039[b]	2,62(12)[b]	2,75(12)[b]	2,88(12)[b]
$8d_{3/2}$	$4f_{5/2}$	2,31	2,26	2,21	-5,0794	-4,8136	-4,6079	2,60(9)	5,02(9)	8,42(9)
		2,31480202[b]	2,26404545[b]	2,21491754[b]	-2,79962[b]	-2,79581[b]	-2,79198[b]	7,41(11)[b]	7,81(11)[b]	8,23(11)[b]
$8d_{3/2}$	$5f_{5/2}$	4,45	4,35	4,26	-2,5592	-2,5774	-2,5963	2,33(11)	2,33(11)	2,33(11)
		4,46034642[b]	4,36275482[b]	4,26829552[b]	-2,04624[b]	-2,04281[b]	-2,03937[b]	1,13(12)[b]	1,19(12)[b]	1,25(12)[b]
$8d_{3/2}$	$6f_{5/2}$	8,96	8,76	8,57	-1,4623	-1,4664	-1,4705	7,17(11)	7,42(11)	7,68(11)
		9,00403306[b]	8,80838384[b]	8,61901853[b]	-1,35617[b]	-1,35292[b]	-1,34964[b]	1,36(12)[b]	1,43(12)[b]	1,51(12)[b]
$8d_{3/2}$	$7f_{5/2}$	23,06	22,56	22,07	-0,4147	-0,4147	-0,4147	1,21(12)	1,26(12)	1,32(12)
		23,34588428[b]	22,84983168[b]	22,36976194[b]	-0,46669[b]	-0,46309[b]	-0,45946[b]	1,57(12)[b]	1,65(12)[b]	1,74(12)[b]
$8d_{3/2}$	$8f_{5/2}$	1106,99	1068,25	1031,44	-0,1963	-0,1902	-0,1843	5,77(8)	6,29(8)	6,84(8)
		703,7893402[b]	672,36194949[b]	642,62550357[b]	0,16314[b]	0,17326[b]	0,18328[b]	2,18(9)[b]	2,44(9)[b]	2,74(9)[b]

Tablo 3.3. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			$A_{ki}(s^{-1})$		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$8d_{3/2}$	$9f_{5/2}$	32,01	31,29	30,60	0,4185	0,4166	0,4146	2,84(12)	2,96(12)	3,08(12)
		34,10809757[b]	30,78446834[b]	30,08189066[b]	-0,33842[b]	0,61421[b]	0,61183[b]	9,86(11)[b]	3,22(12)[b]	3,35(12)[b]
$8d_{3/2}$	$2p_{3/2}$	0,46	0,45	0,44	-3,2103	-3,2330	-3,2566	4,94(12)	4,91(12)	4,86(12)
		0,4560333[b]	0,44587285[b]	0,436038[b]	-2,60827[b]	-2,61069[b]	-2,61315[b]	1,98(13)[b]	2,06(13)[b]	2,14(13)[b]
$8d_{3/2}$	$3p_{3/2}$	1,11	1,08	1,06	-2,5900	-2,6014	-2,6130	3,49(12)	3,56(12)	3,63(12)
		1,10638835[b]	1,08144748[b]	1,0573058[b]	-2,201[b]	-2,20192[b]	-2,20286[b]	8,58(12)[b]	8,96(12)[b]	9,35(12)[b]
$8d_{3/2}$	$4p_{3/2}$	2,26	2,21	2,16	-2,1452	-2,1515	-2,1578	2,34(12)	2,41(12)	2,48(12)
		2,25524111[b]	2,20443603[b]	2,15525891[b]	-1,89364[b]	-1,89406[b]	-1,89449[b]	4,19(12)[b]	4,38(12)[b]	4,58(12)[b]
$8d_{3/2}$	$5p_{3/2}$	4,36	4,26	4,17	-1,7357	-1,7393	-1,7429	1,61(12)	1,67(12)	1,73(12)
		4,34696177[b]	4,24926354[b]	4,15469607[b]	-1,57721[b]	-1,57742[b]	-1,57763[b]	2,34(12)[b]	2,44(12)[b]	2,55(12)[b]
$8d_{3/2}$	$6p_{3/2}$	8,77	8,58	8,39	-1,2719	-1,2738	-1,2756	1,16(12)	1,21(12)	1,26(12)
		8,73808474[b]	8,54213803[b]	8,35247086[b]	-1,18257[b]	-1,18267[b]	-1,18276[b]	1,43(12)[b]	1,50(12)[b]	1,57(12)[b]
$8d_{3/2}$	$7p_{3/2}$	22,36	21,87	21,39	-0,5979	-0,5985	-0,5991	8,42(11)	8,79(11)	9,17(11)
		22,24250115[b]	21,74466883[b]	21,26279141[b]	-0,5643[b]	-0,56434[b]	-0,56437[b]	9,19(11)[b]	9,62(11)[b]	1,01(12)[b]
$8d_{3/2}$	$8p_{3/2}$	11584,96	10943,21	10345,11	-2,1377	-2,1224	-2,1073	9,05(4)	1,05(5)	1,22(5)
$8d_{3/2}$	$9p_{3/2}$	32,53	31,80	31,10	-1,2952	-1,2991	-1,3030	7,99(10)	8,28(10)	8,58(10)
		32,53150676[b]	31,80541394[b]	31,10259318[b]	-1,10778[b]	-1,1079[b]	-1,10802[b]	1,23(11)[b]	1,29(11)[b]	1,34(11)[b]
$8d_{3/2}$	$2p_{1/2}$	0,40	0,39	0,38	-3,8967	-3,6857	-3,5146	1,30(12)	2,22(12)	3,46(12)
		0,39337373[b]	0,38298985[b]	0,37292528[b]	-1,49654[b]	-1,49692[b]	-1,49735[b]	1,72(14)[b]	1,81(14)[b]	1,91(14)[b]
$8d_{3/2}$	$3p_{1/2}$	1,03	1,01	0,98	-2,3956	-2,4284	-2,4625	6,29(12)	6,12(12)	5,93(12)
		0,99202308[b]	0,96660654[b]	0,94197573[b]	-1,22592[b]	-1,22914[b]	-1,23252[b]	5,04(13)[b]	5,27(13)[b]	5,50(13)[b]
$8d_{3/2}$	$4p_{1/2}$	2,15	2,10	2,05	-1,6848	-1,6967	-1,7088	7,46(12)	7,60(12)	7,74(12)
		2,05410348[b]	2,00243778[b]	1,95237572[b]	-1,00717[b]	-1,01285[b]	-1,0188[b]	1,94(13)[b]	2,02(13)[b]	2,09(13)[b]

Tablo 3.3. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			$A_{ki}(s^{-1})$		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$8d_{3/2}$	$5p_{1/2}$	4,18	4,08	3,99	-1,1963	-1,2024	-1,2085	6,07(12)	6,27(12)	6,47(12)
		3,96820027[b]	3,8689399[b]	3,77276636[b]	-0,76899[b]	-0,77714[b]	-0,78566[b]	9,01(12)[b]	9,31(12)[b]	9,60(12)[b]
$8d_{3/2}$	$6p_{1/2}$	8,40	8,21	8,03	-0,7079	-0,7113	-0,7146	4,63(12)	4,81(12)	4,99(12)
		7,87282318[b]	7,67374978[b]	7,48086867[b]	-0,46686[b]	-0,47812[b]	-0,48988[b]	4,59(12)[b]	4,71(12)[b]	4,82(12)[b]
$8d_{3/2}$	$7p_{1/2}$	21,05	20,57	20,12	-0,0526	-0,0544	-0,0562	3,33(12)	3,48(12)	3,62(12)
		18,93421719[b]	18,42966486[b]	17,94086597[b]	-0,02174[b]	-0,03893[b]	-0,05689[b]	2,21(12)[b]	2,24(12)[b]	2,27(12)[b]
$8d_{3/2}$	$8p_{1/2}$	650,08	633,71	618,10	-0,1816	-0,1799	-0,1784	2,60(9)	2,74(9)	2,89(9)
		191,30163191[b]	181,69985599[b]	172,63220073[b]	0,61404[b]	0,62559[b]	0,63705[b]	9,37(10)[b]	1,07(11)[b]	1,21(11)[b]
$8d_{3/2}$	$9p_{1/2}$	33,55	32,80	32,08	-0,4237	-0,4261	-0,4287	1,12(12)	1,16(12)	1,21(12)
		36,91629569[b]	36,23491994[b]	35,57847659[b]	-0,26385[b]	-0,25433[b]	-0,24472[b]	2,67(12)[b]	2,83(12)[b]	3,00(12)[b]
$8d_{5/2}$	$4f_{7/2}$	2,33	2,28	2,24	-3,3874	-3,4150	-3,4441	8,36(10)	8,19(10)	8,00(10)
		2,3363672[b]	2,2856101[b]	2,23648164[b]	-2,67898[b]	-2,67677[b]	-2,67454[b]	5,69(11)[b]	5,97(11)[b]	6,27(11)[b]
$8d_{5/2}$	$5f_{7/2}$	4,48	4,39	4,29	-2,1484	-2,1560	-2,1639	3,93(11)	4,04(11)	4,14(11)
		4,48762762[b]	4,3900209[b]	4,29554621[b]	-1,91816[b]	-1,91625[b]	-1,91433[b]	8,89(11)[b]	9,33(11)[b]	9,79(11)[b]
$8d_{5/2}$	$6f_{7/2}$	9,00	8,81	8,62	-1,2596	-1,2618	-1,2641	7,54(11)	7,84(11)	8,15(11)
		9,01969391[b]	8,82394105[b]	8,63447038[b]	-1,22497[b]	-1,22322[b]	-1,22145[b]	1,09(12)[b]	1,14(12)[b]	1,19(12)[b]
$8d_{5/2}$	$7f_{7/2}$	23,04	22,54	22,06	-0,2802	-0,2801	-0,2799	1,10(12)	1,15(12)	1,20(12)
		23,12754857[b]	22,63040756[b]	22,14923085[b]	-0,34319[b]	-0,34132[b]	-0,33944[b]	1,26(12)[b]	1,32(12)[b]	1,38(12)[b]
$8d_{5/2}$	$8f_{7/2}$	1871,66	1799,67	1731,35	-0,2722	-0,2646	-0,2571	1,27(8)	1,40(8)	1,54(8)
		1468,90060877[b]	1404,71406369[b]	1343,95216923[b]	-0,0506[b]	-0,04085[b]	-0,0312[b]	2,58(8)[b]	2,88(8)[b]	3,22(8)[b]
$8d_{5/2}$	$9f_{7/2}$	32,61	31,89	31,19	0,6177	0,6163	0,6149	3,25(12)	3,39(12)	3,53(12)
		32,47529431[b]	31,74972646[b]	31,04743787[b]	0,77058[b]	0,76956[b]	0,76853[b]	3,50(12)[b]	3,65(12)[b]	3,81(12)[b]

Tablo 3.3. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			$A_{ki}(s^{-1})$		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$8d_{5/2}$	$4f_{5/2}$	2,31	2,25	2,21	-5,3473	-5,2328	-5,1306	9,40(8)	1,28(9)	1,69(9)
		2,30721347[b]	2,25644731[b]	2,20730968[b]	-3,95005[b]	-3,94975[b]	-3,94944[b]	2,34(10)[b]	2,45(10)[b]	2,56(10)[b]
$8d_{5/2}$	$5f_{5/2}$	4,43	4,33	4,24	-3,9228	-3,9503	-3,9790	6,77(9)	6,64(9)	6,50(9)
		4,43225648[b]	4,33462872[b]	4,24013271[b]	-3,18071[b]	-3,1806[b]	-3,18049[b]	3,73(10)[b]	3,90(10)[b]	4,08(10)[b]
$8d_{5/2}$	$6f_{5/2}$	8,88	8,69	8,50	-2,7403	-2,7472	-2,7542	2,56(10)	2,64(10)	2,71(10)
		8,89029377[b]	8,69448043[b]	8,5049485[b]	-2,48333[b]	-2,48332[b]	-2,48331[b]	4,62(10)[b]	4,83(10)[b]	5,05(10)[b]
$8d_{5/2}$	$7f_{5/2}$	22,57	22,07	21,59	-1,6848	-1,6868	-1,6888	4,51(10)	4,69(10)	4,88(10)
		22,59632589[b]	22,0988162[b]	21,61726598[b]	-1,60773[b]	-1,60777[b]	-1,60781[b]	5,37(10)[b]	5,62(10)[b]	5,87(10)[b]
$8d_{5/2}$	$8f_{5/2}$	29836,71	28040,45	26372,31	-2,7789	-2,7615	-2,7442	2,08(3)	2,45(3)	2,88(3)
$8d_{5/2}$	$9f_{5/2}$	33,00	32,27	31,57	-0,6566	-0,6575	-0,6583	2,25(11)	2,35(11)	2,45(11)
		32,98723809[b]	32,26158298[b]	31,55920612[b]	-0,61245[b]	-0,61247[b]	-0,61249[b]	2,49(11)[b]	2,61(11)[b]	2,72(11)[b]
$8d_{5/2}$	$2p_{3/2}$	0,46	0,45	0,44	-2,0237	-2,0378	-2,0523	5,07(13)	5,13(13)	5,19(13)
		0,455738[b]	0,44557737[b]	0,43574234[b]	-1,40398[b]	-1,40455[b]	-1,40512[b]	1,41(14)[b]	1,47(14)[b]	1,54(14)[b]
$8d_{5/2}$	$3p_{3/2}$	1,11	1,08	1,06	-1,5357	-1,5445	-1,5535	2,64(13)	2,71(13)	2,78(13)
		1,10465179[b]	1,07971084[b]	1,05556908[b]	-1,05273[b]	-1,05326[b]	-1,05378[b]	5,38(13)[b]	5,62(13)[b]	5,88(13)[b]
$8d_{5/2}$	$4p_{3/2}$	2,26	2,21	2,16	-1,1496	-1,1551	-1,1607	1,55(13)	1,60(13)	1,65(13)
		2,24803744[b]	2,19723208[b]	2,1480547[b]	-0,77446[b]	-0,77522[b]	-0,77599[b]	2,47(13)[b]	2,58(13)[b]	2,69(13)[b]
$8d_{5/2}$	$5p_{3/2}$	4,34	4,25	4,15	-0,7760	-0,7796	-0,7832	9,87(12)	1,02(13)	1,06(13)
		4,32027754[b]	4,22257725[b]	4,12800772[b]	-0,48063[b]	-0,48173[b]	-0,48286[b]	1,31(13)[b]	1,37(13)[b]	1,43(13)[b]
$8d_{5/2}$	$6p_{3/2}$	8,70	8,51	8,32	-0,3419	-0,3443	-0,3467	6,68(12)	6,95(12)	7,23(12)
		8,63092518[b]	8,43497445[b]	8,24530322[b]	-0,1108[b]	-0,11241[b]	-0,11404[b]	7,71(12)[b]	8,04(12)[b]	8,38(12)[b]
$8d_{5/2}$	$7p_{3/2}$	21,91	21,41	20,94	0,2929	0,2912	0,2896	4,55(12)	4,74(12)	4,94(12)
		21,56108632[b]	21,06346134[b]	20,58179386[b]	0,46212[b]	0,45948[b]	0,4568[b]	4,62(12)[b]	4,81(12)[b]	5,01(12)[b]

Tablo 3.3. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			$A_{ki}(s^{-1})$		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$8d_{5/2}$	$8p_{3/2}$	1175,71	1135,86	1097,96	-0,1870	-0,1814	-0,1761	5,23(8)	5,67(8)	6,15(8)
		703,7893402[b]	672,36194949[b]	642,62550357[b]	0,1976[b]	0,20763[b]	0,21757[b]	2,36(9)[b]	2,64(9)[b]	2,96(9)[b]
$8d_{5/2}$	$9p_{3/2}$	33,55	32,82	32,11	-0,1751	-0,1763	-0,1775	9,90(11)	1,03(12)	1,07(12)
		34,10809757[b]	33,38464122[b]	30,08189066[b]	-0,17601[b]	-0,17281[b]	0,47451[b]	1,43(12)[b]	1,51(12)[b]	2,44(12)[b]
$8g_{7/2}$	$4f_{7/2}$	2,33	2,28	2,23	-2,3115	-2,3134	-2,3153	7,48(11)	7,79(11)	8,10(11)
$8g_{7/2}$	$5f_{7/2}$	4,47	4,38	4,28	-1,7774	-1,7786	-1,7797	6,96(11)	7,25(11)	7,56(11)
$8g_{7/2}$	$6f_{7/2}$	8,96	8,77	8,58	-1,2924	-1,2930	-1,2937	5,29(11)	5,52(11)	5,76(11)
$8g_{7/2}$	$7f_{7/2}$	22,77	22,27	21,79	-0,6323	-0,6326	-0,6328	3,75(11)	3,92(11)	4,09(11)
$8g_{7/2}$	$8f_{7/2}$	67180,46	62983,85	59093,21	-3,3213	-3,3028	-3,2845	8,82(1)	1,05(2)	1,24(2)
$8g_{7/2}$	$9f_{7/2}$	33,17	32,45	31,74	-1,9395	-1,9426	-1,9457	8,71(9)	9,04(9)	9,38(9)
$8g_{7/2}$	$4f_{5/2}$	2,30	2,25	2,20	-0,8496	-0,8509	-0,8521	2,22(13)	2,32(13)	2,42(13)
$8g_{7/2}$	$5f_{5/2}$	4,42	4,32	4,23	-0,3350	-0,3359	-0,3369	1,97(13)	2,06(13)	2,15(13)
$8g_{7/2}$	$6f_{5/2}$	8,84	8,65	8,46	0,1334	0,1326	0,1318	1,45(13)	1,51(13)	1,58(13)
$8g_{7/2}$	$7f_{5/2}$	22,31	21,81	21,33	0,7700	0,7692	0,7683	9,86(12)	1,03(13)	1,07(13)
$8g_{7/2}$	$8f_{5/2}$	1808,59	1737,79	1670,62	-0,3150	-0,3071	-0,2993	1,23(8)	1,36(8)	1,50(8)
$8g_{7/2}$	$9f_{5/2}$	33,57	32,85	32,14	-0,4298	-0,4312	-0,4327	3,67(11)	3,82(11)	3,97(11)
$8g_{9/2}$	$4f_{7/2}$	2,33	2,28	2,23	-0,7255	-0,7264	-0,7274	2,31(13)	2,41(13)	2,51(13)
$8g_{9/2}$	$5f_{7/2}$	4,47	4,37	4,27	-0,2114	-0,2120	-0,2127	2,06(13)	2,15(13)	2,24(13)
$8g_{9/2}$	$6f_{7/2}$	8,93	8,74	8,55	0,2575	0,2569	0,2564	1,51(13)	1,58(13)	1,65(13)
$8g_{9/2}$	$7f_{7/2}$	22,58	22,08	21,60	0,8976	0,8971	0,8965	1,03(13)	1,08(13)	1,13(13)
$8g_{9/2}$	$8f_{7/2}$	2813,14	2698,76	2590,33	-0,3961	-0,3875	-0,3790	3,39(7)	3,75(7)	4,15(7)
$8g_{9/2}$	$9f_{7/2}$	33,59	32,86	32,15	-0,3037	-0,3047	-0,3058	3,67(11)	3,83(11)	3,99(11)

Tablo 3.3. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			$A_{ki}(s^{-1})$		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$8s_{1/2}$	$2p_{3/2}$	0,46	0,45	0,44	-2,7295	-2,6971	-2,6655	2,99(13)	3,37(13)	3,79(13)
		0,45712301[b]	0,44696967[b]	0,43714214[b]	-3,00665[b]	-3,00195[b]	-2,99734[b]	3,14(13)[b]	3,32(13)[b]	3,51(13)[b]
$8s_{1/2}$	$3p_{3/2}$	1,11	1,08	1,06	-3,5371	-3,4535	-3,3765	7,87(11)	9,99(11)	1,25(12)
		1,11282434[b]	1,08792262[b]	1,0638213[b]	-2,42787[b]	-2,42324[b]	-2,41868[b]	2,01(13)[b]	2,13(13)[b]	2,25(13)[b]
$8s_{1/2}$	$4p_{3/2}$	2,27	2,22	2,17	-2,9360	-2,9761	-3,0185	7,52(11)	7,17(11)	6,80(11)
		2,28214516[b]	2,23150935[b]	2,18250683[b]	-1,98627[b]	-1,98165[b]	-1,97707[b]	1,32(13)[b]	1,40(13)[b]	1,48(13)[b]
$8s_{1/2}$	$5p_{3/2}$	4,39	4,29	4,19	-1,8777	-1,8879	-1,8982	2,30(12)	2,35(12)	2,40(12)
		4,44803481[b]	4,35101716[b]	4,25715189[b]	-1,55301[b]	-1,54816[b]	-1,54335[b]	9,44(12)[b]	9,97(12)[b]	1,05(13)[b]
$8s_{1/2}$	$6p_{3/2}$	8,87	8,68	8,48	-1,1327	-1,1364	-1,1401	3,12(12)	3,24(12)	3,36(12)
		9,15631788[b]	8,96353491[b]	8,77713536[b]	-1,03474[b]	-1,02911[b]	-1,02349[b]	7,34(12)[b]	7,76(12)[b]	8,20(12)[b]
$8s_{1/2}$	$7p_{3/2}$	23,02	22,50	22,01	-0,2584	-0,2594	-0,2605	3,47(12)	3,62(12)	3,78(12)
		25,16886694[b]	24,70068814[b]	24,24956595[b]	-0,21676[b]	-0,20796[b]	-0,19908[b]	6,39(12)[b]	6,77(12)[b]	7,17(12)[b]
$8s_{1/2}$	$8p_{3/2}$	740,37	723,13	706,71	-0,2206	-0,2198	-0,2192	1,83(9)	1,92(9)	2,02(9)
		191,30163191[b]	181,69985599[b]	172,63220073[b]	0,62252[b]	0,63369[b]	0,64477[b]	9,55(10)[b]	1,09(11)[b]	1,23(11)[b]
$8s_{1/2}$	$9p_{3/2}$	31,24	30,55	29,88	-0,2195	-0,2215	-0,2235	1,03(12)	1,07(12)	1,12(12)
		27,80343594[b]	27,06743086[b]	26,3544042[b]	-0,23538[b]	-0,25783[b]	-0,28138[b]	6,27(11)[b]	6,29(11)[b]	6,28(11)[b]
$8s_{1/2}$	$2p_{1/2}$	0,40	0,39	0,38	-1,6497	-1,6285	-1,6075	4,58(14)	5,06(14)	5,59(14)
		0,39418429[b]	0,38379882[b]	0,37373262[b]	-3,37199[b]	-3,3732[b]	-3,37445[b]	9,11(12)[b]	9,59(12)[b]	1,01(13)[b]
$8s_{1/2}$	$3p_{1/2}$	1,03	1,01	0,99	-2,0599	-2,0375	-2,0157	2,72(13)	3,00(13)	3,31(13)
		0,99719417[b]	0,97177619[b]	0,94714387[b]	-2,75628[b]	-2,75722[b]	-2,75818[b]	5,88(12)[b]	6,18(12)[b]	6,49(12)[b]
$8s_{1/2}$	$4p_{1/2}$	2,16	2,11	2,06	-2,7994	-2,7607	-2,7238	1,14(12)	1,30(12)	1,49(12)
		2,07639883[b]	2,02475172[b]	1,97470859[b]	-2,29517[b]	-2,29589[b]	-2,29662[b]	3,92(12)[b]	4,12(12)[b]	4,32(12)[b]

Tablo 3.3. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			$A_{ki}(s^{-1})$		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$8s_{1/2}$	$5p_{1/2}$	4,20	4,11	4,01	-3,2797	-3,3377	-3,3997	9,92(10)	9,09(10)	8,25(10)
		4,05225688[b]	3,95311366[b]	3,77276636[b]	-1,858[b]	-1,85858[b]	-0,78566[b]	2,82(12)[b]	2,96(12)[b]	9,60(12)[b]
$8s_{1/2}$	$6p_{1/2}$	8,49	8,30	8,11	-1,8019	-1,8110	-1,8202	7,30(11)	7,48(11)	7,66(11)
		8,21072727[b]	8,0121268[b]	7,81972998[b]	-1,35885[b]	-1,35934[b]	-1,35984[b]	2,17(12)[b]	2,27(12)[b]	2,38(12)[b]
$8s_{1/2}$	$7p_{1/2}$	21,62	21,14	20,66	-0,7936	-0,7966	-0,7996	1,15(12)	1,19(12)	1,24(12)
		21,01410323[b]	20,50997446[b]	20,02162035[b]	-0,63801[b]	-0,63843[b]	-0,63886[b]	1,74(12)[b]	1,82(12)[b]	1,91(12)[b]
$8s_{1/2}$	$8p_{1/2}$	3650,94	3490,11	3338,82	-1,2156	-1,2055	-1,1956	1,52(7)	1,71(7)	1,91(7)
$8s_{1/2}$	$9p_{1/2}$	32,18	31,47	30,78	-0,3931	-0,3943	-0,3956	1,30(12)	1,36(12)	1,42(12)
		30,94475392[a]	30,2103219[b]	29,49892287[b]	-0,27569[b]	-0,27589[b]	-0,27609[b]	1,85(12)[b]	1,94(12)[b]	2,03(12)[b]
$9d_{3/2}$	$4f_{5/2}$	2,16	2,11	2,06	-2,6153	-2,5853	-2,5558	8,69(11)	9,73(11)	1,09(12)
		2,16103227[b]	2,113591[b]	2,06767186[b]	-3,04448[b]	-3,04068[b]	-3,03685[b]	4,83(11)[b]	5,10(11)[b]	5,37(11)[b]
$9d_{3/2}$	$5f_{5/2}$	3,91	3,83	3,74	-3,1622	-3,0980	-3,0376	7,49(10)	9,09(10)	1,09(11)
		3,92253367[b]	3,8365012[b]	3,75322939[b]	-2,35604[b]	-2,35264[b]	-2,34922[b]	7,16(11)[b]	7,55(11)[b]	7,95(11)[b]
$9d_{3/2}$	$6f_{5/2}$	7,03	6,87	6,72	-2,8602	-2,9087	-2,9605	4,66(10)	4,36(10)	4,04(10)
		7,05214772[b]	6,89800781[b]	6,74881545[b]	-1,78499[b]	-1,78184[b]	-1,77867[b]	8,25(11)[b]	8,69(11)[b]	9,14(11)[b]
$9d_{3/2}$	$7f_{5/2}$	13,50	13,21	12,92	-1,4797	-1,4886	-1,4977	3,03(11)	3,10(11)	3,18(11)
		13,59184418[b]	13,29695525[b]	13,01153846[b]	-1,17793[b]	-1,17485[b]	-1,17175[b]	8,99(11)[b]	9,46(11)[b]	9,95(11)[b]
$9d_{3/2}$	$8f_{5/2}$	33,57	32,84	32,13	-0,3663	-0,3679	-0,3695	6,37(11)	6,63(11)	6,90(11)
		34,10809757[b]	33,38464122[b]	32,68449843[b]	-0,33842[b]	-0,33493[b]	-0,33141[b]	9,86(11)[b]	1,04(12)[b]	1,09(12)[b]
$9d_{3/2}$	$9f_{5/2}$	1821,78	1762,38	1705,87	-0,1711	-0,1658	-0,1606	2,26(8)	2,44(8)	2,64(8)
		1003,81176962[b]	959,0253949[b]	916,64789065[b]	0,22882[b]	0,23893[b]	0,24895[b]	1,25(9)[b]	1,40(9)[b]	1,56(9)[b]
$9d_{3/2}$	$2p_{3/2}$	0,45	0,44	0,43	-5,2714	-5,6751	-6,4634	4,41(10)	1,82(10)	3,10(9)
		0,44972891[b]	0,43970867[b]	0,43000955[b]	-2,78322[b]	-2,78572[b]	-2,78825[b]	1,36(13)[b]	1,41(13)[b]	1,47(13)[b]

Tablo 3.3. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			$A_{ki}(s^{-1})$		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$9d_{3/2}$	$3p_{3/2}$	1,07	1,05	1,02	-3,4524	-3,4961	-3,5424	5,13(11)	4,85(11)	4,56(11)
		1,06999799[b]	1,0458853[b]	1,02254526[b]	-2,39202[b]	-2,393[b]	-2,39399[b]	5,91(12)[b]	6,17(12)[b]	6,44(12)[b]
$9d_{3/2}$	$4p_{3/2}$	2,11	2,07	2,02	-2,7491	-2,7673	-2,7859	6,65(11)	6,67(11)	6,68(11)
		2,10903278[b]	2,06154983[b]	2,01558841[b]	-2,11289[b]	-2,11337[b]	-2,11386[b]	2,89(12)[b]	3,02(12)[b]	3,16(12)[b]
$9d_{3/2}$	$5p_{3/2}$	3,85	3,76	3,68	-2,2608	-2,2705	-2,2804	6,18(11)	6,32(11)	6,46(11)
		3,53678274[b]	3,74846193[b]	3,66510939[b]	-1,00803[b]	-1,84618[b]	-1,84644[b]	6,54(12)[b]	1,69(12)[b]	1,77(12)[b]
$9d_{3/2}$	$6p_{3/2}$	6,91	6,76	6,61	-1,8172	-1,8228	-1,8284	5,32(11)	5,49(11)	5,67(11)
		6,33879589[b]	6,73364858[b]	6,58428796[b]	-0,77392[b]	-1,54609[b]	-1,54623[b]	3,49(12)[b]	1,05(12)[b]	1,09(12)[b]
$9d_{3/2}$	$7p_{3/2}$	13,26	12,97	12,68	-1,3223	-1,3253	-1,3284	4,51(11)	4,69(11)	4,87(11)
		13,21031825[b]	12,91497897[b]	12,6291052[b]	-1,15815[b]	-1,15823[b]	-1,1583[b]	6,64(11)[b]	6,94(11)[b]	7,26(11)[b]
$9d_{3/2}$	$8p_{3/2}$	32,67	31,95	31,25	-0,6157	-0,6169	-0,6181	3,78(11)	3,95(11)	4,11(11)
		32,53150676[b]	31,80541394[b]	31,10259318[b]	-0,54166[b]	-0,5417[b]	-0,54174[b]	4,53(11)[b]	4,74(11)[b]	4,95(11)[b]
$9d_{3/2}$	$9p_{3/2}$	19188,28	18171,47	17221,93	-2,1190	-2,1044	-2,0901	3,44(4)	3,97(4)	4,57(4)
$9d_{3/2}$	$2p_{1/2}$	0,40	0,39	0,38	-1,7795	-1,7475	-1,7163	1,74(14)	1,97(14)	2,23(14)
		0,38867386[b]	0,37843289[b]	0,36850682[b]	-1,66575[b]	-1,66605[b]	-1,6664[b]	1,19(14)[b]	1,26(14)[b]	1,32(14)[b]
$9d_{3/2}$	$3p_{1/2}$	1,00	0,98	0,95	-2,5797	-2,5229	-2,4697	4,38(12)	5,24(12)	6,21(12)
		0,96266728[b]	0,93809661[b]	0,9142856[b]	-1,40675[b]	-1,40975[b]	-1,4129[b]	3,53(13)[b]	3,69(13)[b]	3,85(13)[b]
$9d_{3/2}$	$4p_{1/2}$	2,02	1,97	1,93	-3,3883	-3,5169	-3,6672	1,68(11)	1,31(11)	9,68(10)
		1,93210647[b]	21,85289249[b]	1,83705959[b]	-1,20916[b]	0,23712[b]	-1,21986[b]	1,38(13)[b]	3,01(12)[b]	1,49(13)[b]
$9d_{3/2}$	$5p_{1/2}$	3,70	3,62	3,54	-2,0105	-2,0320	-2,0540	1,19(12)	1,18(12)	1,18(12)
		3,53678274[b]	3,44934727[b]	3,36463391[b]	-1,00803[b]	-1,0153[b]	-1,02292[b]	6,54(12)[b]	6,77(12)[b]	6,99(12)[b]
$9d_{3/2}$	$6p_{1/2}$	6,68	6,53	6,38	-1,3682	-1,3776	-1,3870	1,60(12)	1,64(12)	1,68(12)
		6,33879589[b]	6,18216713[b]	6,03041831[b]	-0,77392[b]	-0,7834[b]	-0,79331[b]	3,49(12)[b]	3,59(12)[b]	3,69(12)[b]

Tablo 3.3. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			$A_{ki}(s^{-1})$		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$9d_{3/2}$	$7p_{1/2}$	12,79	12,50	12,22	-0,7960	-0,8007	-0,8054	1,63(12)	1,69(12)	1,75(12)
		11,96832702[b]	11,66840251[b]	11,37781603[b]	-0,47062[b]	-0,48302[b]	-0,49599[b]	1,97(12)[b]	2,01(12)[b]	2,06(12)[b]
$9d_{3/2}$	$8p_{1/2}$	31,03	30,33	29,66	-0,0733	-0,0754	-0,0775	1,46(12)	1,52(12)	1,59(12)
		27,80343594[b]	27,06743086[b]	26,3544042[b]	-0,02158[b]	-0,03983[b]	-0,05891[b]	1,03(12)[b]	1,04(12)[b]	1,05(12)[b]
$9d_{3/2}$	$9p_{1/2}$	1133,82	1108,02	1083,42	-0,1828	-0,1819	-0,1812	8,51(8)	8,93(8)	9,36(8)
		273,88837693[b]	260,17949343[b]	247,23228507[b]	0,66988[b]	0,68138[b]	0,69279[b]	5,20(10)[b]	5,91(10)[b]	6,72(10)[b]
$9d_{5/2}$	$4f_{7/2}$	2,18	2,13	2,09	-3,5453	-3,4882	-3,4341	6,66(10)	7,94(10)	9,39(10)
		2,18183564[b]	2,13439627[b]	2,08847903[b]	-2,92385[b]	-2,92163[b]	-2,91939[b]	3,71(11)[b]	3,90(11)[b]	4,09(11)[b]
$9d_{5/2}$	$5f_{7/2}$	3,95	3,86	3,78	-3,8444	-3,9598	-4,0943	1,02(10)	8,18(9)	6,27(9)
		3,95023272[b]	3,86419716[b]	3,78092218[b]	-2,22746[b]	-2,22556[b]	-2,22363[b]	5,63(11)[b]	5,91(11)[b]	6,20(11)[b]
$9d_{5/2}$	$6f_{7/2}$	7,07	6,92	6,77	-2,1561	-2,1729	-2,1902	1,55(11)	1,56(11)	1,57(11)
		7,08299265[b]	6,92882258[b]	6,77959953[b]	-1,65142[b]	-1,6497[b]	-1,64797[b]	6,59(11)[b]	6,92(11)[b]	7,25(11)[b]
$9d_{5/2}$	$7f_{7/2}$	13,56	13,27	12,98	-1,2094	-1,2147	-1,2202	3,73(11)	3,85(11)	3,97(11)
		13,59559568[b]	13,30053372[b]	13,01494106[b]	-1,04292[b]	-1,04129[b]	-1,03964[b]	7,26(11)[b]	7,62(11)[b]	7,99(11)[b]
$9d_{5/2}$	$8f_{7/2}$	33,57	32,84	32,13	-0,2064	-0,2074	-0,2085	6,13(11)	6,39(11)	6,66(11)
		33,74505392[b]	33,01994055[b]	32,31811257[b]	-0,21247[b]	-0,21068[b]	-0,20886[b]	7,98(11)[b]	8,37(11)[b]	8,77(11)[b]
$9d_{5/2}$	$9f_{7/2}$	2954,01	2846,03	2743,46	-0,2345	-0,2275	-0,2206	5,57(7)	6,10(7)	6,67(7)
		2092,55448415[b]	2001,13978303[b]	1914,6019687[b]	0,01549[b]	0,02525[b]	0,03491[b]	1,48(8)[b]	1,66(8)[b]	1,85(8)[b]
$9d_{5/2}$	$4f_{5/2}$	2,15	2,11	2,06	-3,6755	-3,6462	-3,6176	5,05(10)	5,65(10)	6,31(10)
		2,15638993[b]	2,10894311[b]	2,06301833[b]	-4,19492[b]	-4,19459[b]	-4,19427[b]	1,53(10)[b]	1,60(10)[b]	1,67(10)[b]
$9d_{5/2}$	$5f_{5/2}$	3,90	3,82	3,74	-4,0585	-4,0055	-3,9551	6,37(9)	7,53(9)	8,84(9)
		3,90726549[b]	3,82121475[b]	3,7379244[b]	-3,48951[b]	-3,48937[b]	-3,48924[b]	2,36(10)[b]	2,47(10)[b]	2,58(10)[b]

Tablo 3.3. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			$A_{ki}(s^{-1})$		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$9d_{5/2}$	$6f_{5/2}$	7,00	6,84	6,69	-4,4345	-4,5266	-4,6305	8,35(8)	7,06(8)	5,81(8)
		7,00294941[b]	6,84874664[b]	6,69949049[b]	-2,90751[b]	-2,90748[b]	-2,90744[b]	2,80(10)[b]	2,93(10)[b]	3,07(10)[b]
$9d_{5/2}$	$7f_{5/2}$	13,40	13,10	12,82	-2,7684	-2,7813	-2,7946	1,06(10)	1,07(10)	1,09(10)
		13,41026607[b]	13,11511327[b]	12,82942861[b]	-2,29666[b]	-2,29668[b]	-2,2967[b]	3,12(10)[b]	3,26(10)[b]	3,41(10)[b]
$9d_{5/2}$	$8f_{5/2}$	32,94	32,21	31,51	-1,6264	-1,6298	-1,6333	2,42(10)	2,51(10)	2,60(10)
		32,98723809[b]	32,26158298[b]	31,55920612[b]	-1,47386[b]	-1,47391[b]	-1,47396[b]	3,43(10)[b]	3,59(10)[b]	3,75(10)[b]
$9d_{5/2}$	$9f_{5/2}$	46011,57	43331,91	40839,96	-2,7266	-2,7097	-2,6930	9,86(2)	1,16(3)	1,35(3)
$9d_{5/2}$	$2p_{3/2}$	0,45	0,44	0,43	-3,2158	-3,3048	-3,4050	3,35(12)	2,85(12)	2,37(12)
		0,44952751[b]	0,43950716[b]	0,42980792[b]	-1,57637[b]	-1,57694[b]	-1,57752[b]	9,73(13)[b]	1,02(14)[b]	1,06(14)[b]
$9d_{5/2}$	$3p_{3/2}$	1,07	1,05	1,02	-2,2864	-2,3190	-2,3532	5,02(12)	4,87(12)	4,71(12)
		1,06885865[b]	1,04474593[b]	1,02140585[b]	-1,24017[b]	-1,24066[b]	-1,24117[b]	3,73(13)[b]	3,90(13)[b]	4,08(13)[b]
$9d_{5/2}$	$4p_{3/2}$	2,11	2,06	2,02	-1,7117	-1,7278	-1,7444	4,84(12)	4,88(12)	4,92(12)
		2,10461094[b]	2,05712776[b]	2,01116612[b]	-0,98838[b]	-0,98907[b]	-0,98977[b]	1,72(13)[b]	1,80(13)[b]	1,88(13)[b]
$9d_{5/2}$	$5p_{3/2}$	3,84	3,75	3,67	-1,2731	-1,2824	-1,2920	4,02(12)	4,12(12)	4,21(12)
		3,81998161[b]	3,73386767[b]	3,65051324[b]	-0,74087[b]	-0,74182[b]	-0,74278[b]	9,22(12)[b]	9,63(12)[b]	1,01(13)[b]
$9d_{5/2}$	$6p_{3/2}$	6,89	6,73	6,58	-0,8595	-0,8653	-0,8711	3,24(12)	3,34(12)	3,45(12)
		6,84101271[b]	6,68669896[b]	6,53733027[b]	-0,45887[b]	-0,46015[b]	-0,46145[b]	5,51(12)[b]	5,75(12)[b]	5,99(12)[b]
$9d_{5/2}$	$7p_{3/2}$	13,16	12,87	12,59	-0,3900	-0,3936	-0,3972	2,61(12)	2,71(12)	2,81(12)
		13,03872659[b]	12,74336692[b]	12,45747253[b]	-0,0931[b]	-0,09486[b]	-0,09665[b]	3,52(12)[b]	3,67(12)[b]	3,82(12)[b]
$9d_{5/2}$	$8p_{3/2}$	32,08	31,36	30,67	0,2818	0,2797	0,2775	2,07(12)	2,15(12)	2,24(12)
		31,51032106[b]	30,78446834[b]	30,08189066[b]	0,48009[b]	0,47732[b]	0,47451[b]	2,25(12)[b]	2,35(12)[b]	2,44(12)[b]
$9d_{5/2}$	$9p_{3/2}$	1928,52	1867,55	1809,53	-0,1696	-0,1648	-0,1601	2,02(8)	2,18(8)	2,35(8)
		1003,81176962[b]	959,0253949[b]	916,64789065[b]	0,25498[b]	0,26502[b]	0,27496[b]	1,32(9)[b]	1,48(9)[b]	1,66(9)[b]

Tablo 3.3. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			$A_{ki}(s^{-1})$		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$9g_{7/2}$	$4f_{7/2}$	2,18	2,13	2,09	-2,6489	-2,6489	-2,6526	3,97(11)	4,12(11)	4,27(11)
$9g_{7/2}$	$5f_{7/2}$	3,94	3,86	3,77	-2,1526	-2,1526	-2,1552	3,80(11)	3,95(11)	4,10(11)
$9g_{7/2}$	$6f_{7/2}$	7,06	6,90	6,75	-1,7499	-1,7499	-1,7517	2,99(11)	3,11(11)	3,24(11)
$9g_{7/2}$	$7f_{7/2}$	13,50	13,21	12,92	-1,3051	-1,3051	-1,3063	2,27(11)	2,37(11)	2,47(11)
$9g_{7/2}$	$8f_{7/2}$	33,20	32,47	31,77	-0,6544	-0,6544	-0,6550	1,68(11)	1,75(11)	1,83(11)
$9g_{7/2}$	$9f_{7/2}$	95550,54	89713,05	84297,17	-3,2050	-3,2050	-3,1871	5,46(1)	6,46(1)	7,63(1)
$9g_{7/2}$	$4f_{5/2}$	2,15	2,11	2,06	-1,2093	-1,2129	-1,2165	1,11(13)	1,15(13)	1,19(13)
$9g_{7/2}$	$5f_{5/2}$	3,90	3,81	3,73	-0,7211	-0,7238	-0,7265	1,04(13)	1,08(13)	1,12(13)
$9g_{7/2}$	$6f_{5/2}$	6,98	6,83	6,68	-0,3259	-0,3279	-0,3300	8,08(12)	8,40(12)	8,74(12)
$9g_{7/2}$	$7f_{5/2}$	13,34	13,05	12,76	0,1100	0,1085	0,1069	6,04(12)	6,29(12)	6,55(12)
$9g_{7/2}$	$8f_{5/2}$	32,59	31,86	31,16	0,7438	0,7426	0,7414	4,35(12)	4,54(12)	4,73(12)
$9g_{7/2}$	$9f_{5/2}$	2858,85	2752,57	2651,63	-0,2624	-0,2551	-0,2478	5,58(7)	6,12(7)	6,70(7)
$9g_{9/2}$	$4f_{7/2}$	2,18	2,13	2,08	-1,0462	-1,0485	-1,0508	1,26(13)	1,31(13)	1,37(13)
$9g_{9/2}$	$5f_{7/2}$	3,94	3,85	3,77	-0,5712	-0,5730	-0,5748	1,15(13)	1,20(13)	1,25(13)
$9g_{9/2}$	$6f_{7/2}$	7,04	6,89	6,74	-0,1843	-0,1857	-0,1871	8,79(12)	9,16(12)	9,54(12)
$9g_{9/2}$	$7f_{7/2}$	13,46	13,16	12,88	0,2458	0,2447	0,2436	6,48(12)	6,76(12)	7,05(12)
$9g_{9/2}$	$8f_{7/2}$	32,94	32,21	31,51	0,8771	0,8762	0,8754	4,63(12)	4,83(12)	5,04(12)
$9g_{9/2}$	$9f_{7/2}$	4321,32	4152,14	3991,64	-0,3353	-0,3272	-0,3191	1,65(7)	1,82(7)	2,01(7)
$9s_{1/2}$	$2p_{3/2}$	0,45	0,44	0,43	-2,1231	-2,0999	-2,0771	1,24(14)	1,37(14)	1,51(14)
		0,45046859[b]	0,44045305[b]	0,43075876[b]	-3,17879[b]	-3,17423[b]	-3,16976[b]	2,18(13)[b]	2,30(13)[b]	2,43(13)[b]
$9s_{1/2}$	$3p_{3/2}$	1,07	1,05	1,02	-2,2412	-2,2128	-2,1850	1,67(13)	1,86(13)	2,08(13)
		1,07419454[b]	1,05010658[b]	1,02679204[b]	-2,62076[b]	-2,61631[b]	-2,61192[b]	1,38(13)[b]	1,46(13)[b]	1,55(13)[b]

Tablo 3.3. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			$A_{ki}(s^{-1})$		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$9s_{1/2}$	$4p_{3/2}$	2,12	2,07	2,02	-2,8020	-2,7528	-2,7059	1,17(12)	1,38(12)	1,60(12)
		2,12539907[b]	2,07801512[b]	2,03215578[b]	-2,21482[b]	-2,21046[b]	-2,20615[b]	9,00(12)[b]	9,51(12)[b]	1,00(13)[b]
$9s_{1/2}$	$5p_{3/2}$	3,86	3,77	3,69	-3,8094	-3,9695	-4,1672	3,48(10)	2,51(10)	1,67(10)
		3,88902225[b]	3,80325626[b]	3,72026061[b]	-1,84377[b]	-1,83937[b]	-1,83502[b]	6,32(12)[b]	6,68(12)[b]	7,05(12)[b]
$9s_{1/2}$	$6p_{3/2}$	6,95	6,79	6,64	-2,0563	-2,0744	-2,0929	6,07(11)	6,09(11)	6,10(11)
		7,06564665[b]	6,9125508[b]	6,76443842[b]	-1,44692[b]	-1,44224[b]	-1,43761[b]	4,77(12)[b]	5,04(12)[b]	5,32(12)[b]
$9s_{1/2}$	$7p_{3/2}$	13,39	13,09	12,81	-1,1955	-1,2018	-1,2081	1,19(12)	1,22(12)	1,26(12)
		13,87977432[b]	13,58954678[b]	13,30895233[b]	-0,94985[b]	-0,94434[b]	-0,93885[b]	3,89(12)[b]	4,11(12)[b]	4,34(12)[b]
$9s_{1/2}$	$8p_{3/2}$	33,47	32,73	32,01	-0,2634	-0,2655	-0,2676	1,62(12)	1,69(12)	1,76(12)
		36,91629569[b]	36,23491994[b]	35,57847659[b]	-0,14526[b]	-0,13654[b]	-0,12773[b]	3,50(12)[b]	3,71(12)[b]	3,93(12)[b]
$9s_{1/2}$	$9p_{3/2}$	1280,98	1254,09	1228,45	-0,2232	-0,2232	-0,2232	6,08(8)	6,34(8)	6,61(8)
		273,88837693[b]	260,17949343[b]	247,23228507[b]	0,67517[b]	0,68634[b]	0,6974[b]	5,26(10)[b]	5,98(10)[b]	6,80(10)[b]
$9s_{1/2}$	$2p_{1/2}$	0,40	0,39	0,38	-1,2466	-1,2275	-1,2087	1,19(15)	1,31(15)	1,43(15)
		0,38922621[b]	0,37898412[b]	0,36905691[b]	-3,54138[b]	-3,54265[b]	-3,54396[b]	6,33(12)[b]	6,66(12)[b]	7,00(12)[b]
$9s_{1/2}$	$3p_{1/2}$	1,00	0,98	0,95	-1,5243	-1,5071	-1,4902	9,95(13)	1,09(14)	1,18(14)
		0,96606282[b]	0,94149122[b]	0,91767926[b]	-2,94447[b]	-2,94544[b]	-2,94644[b]	4,06(12)[b]	4,27(12)[b]	4,48(12)[b]
$9s_{1/2}$	$4p_{1/2}$	2,02	1,97	1,93	-1,8517	-1,8331	-1,8149	1,15(13)	1,26(13)	1,37(13)
		1,94583307[b]	1,89757287[b]	1,85081205[b]	-2,51572[b]	-2,51645[b]	-2,51721[b]	2,69(12)[b]	2,82(12)[b]	2,96(12)[b]
$9s_{1/2}$	$5p_{1/2}$	3,71	3,63	3,55	-2,3445	-2,3179	-2,2923	1,09(12)	1,22(12)	1,35(12)
		3,5830515[b]	3,49569164[b]	3,41105565[b]	-2,13403[b]	-2,13461[b]	-2,13521[b]	1,91(12)[b]	2,00(12)[b]	2,10(12)[b]
$9s_{1/2}$	$6p_{1/2}$	6,71	6,56	6,41	-4,6897	-4,3969	-4,1801	1,51(9)	3,11(9)	5,35(9)
		6,48897491[b]	6,33263797[b]	6,18118806[b]	-1,73882[b]	-1,73931[b]	-1,73981[b]	1,45(12)[b]	1,52(12)[b]	1,59(12)[b]

Tablo 3.3. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			$A_{ki}(s^{-1})$		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$9s_{1/2}$	$7p_{1/2}$	12,91	12,62	12,34	-1,9875	-2,0019	-2,0164	2,06(11)	2,09(11)	2,11(11)
		12,51521471[b]	12,21627189[b]	11,92669135[b]	-1,26472[b]	-1,26514[b]	-1,26557[b]	1,16(12)[b]	1,21(12)[b]	1,27(12)[b]
$9s_{1/2}$	$8p_{1/2}$	31,74	31,03	30,34	-0,8086	-0,8124	-0,8163	5,14(11)	5,33(11)	5,53(11)
		30,94475392[b]	30,2103219[b]	29,49892287[b]	-0,5604[b]	-0,56077[b]	-0,56115[b]	9,58(11)[b]	1,00(12)[b]	1,05(12)[b]
$9s_{1/2}$	$9p_{1/2}$	6517,46	6244,22	5986,64	-1,2258	-1,2164	-1,2071	4,67(6)	5,20(6)	5,78(6)

Tablo 3.4. Hidrojen benzeri protaktinyum, uranyum ve neptünyumun elektrik kuadrupol (E2) geçiş parametreleri

Geçişler		Dalga Boyu (Å)			log(*gf*)			A_{ki} (s^{-1})		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$1s_{1/2}$	$3d_{5/2}$	0,11	0,11	0,10	-2,03874	-2,01897	-1,99908	8,49(14)	9,33(14)	1,03(15)
		0,10664485[a]	0,10390905[a]	0,1012575[a]				2,19(14)[a]	2,31(14)[a]	2,43(14)[a]
$1s_{1/2}$	$4d_{5/2}$	0,10	0,10	0,10	-1,80740	-1,77944	-1,75146	1,59(15)	1,78(15)	1,99(15)
		0,1018126[a]	0,09921854[a]	0,09670436[a]				1,24(14)[a]	1,31(14)[a]	1,38(14)[a]
$1s_{1/2}$	$5d_{5/2}$	0,10	0,10	0,10	-1,49957	-1,46786	-1,43623	3,37(15)	3,81(15)	4,30(15)
		0,09970317[a]	0,09717006[a]	0,09471496[a]				7,05(13)[a]	7,45(13)[a]	7,86(13)[a]
$1s_{1/2}$	$6d_{5/2}$	0,10	0,10	0,10	-1,13772	-1,10478	-1,07205	7,94(15)	8,99(15)	1,02(16)
		0,09859106[a]	0,09608991[a]	0,09366579[a]				4,30(13)[a]	4,54(13)[a]	4,79(13)[a]
$1s_{1/2}$	$7d_{5/2}$	0,10	0,10	0,10	-0,70277	-0,66981	-0,63719	2,19(16)	2,48(16)	2,81(16)
		0,09793231[a]	0,09545005[a]	0,09304423[a]				2,78(13)[a]	2,94(13)[a]	3,10(13)[a]
$1s_{1/2}$	$8d_{5/2}$	0,10	0,10	0,10	-0,11755	-0,08547	-0,05364	8,51(16)	9,62(16)	1,09(17)
		0,0975097[b]	0,09503955[b]	0,09264547[b]				1,90(13)[b]	2,00(13)[b]	2,12(13)[b]
$1s_{1/2}$	$9d_{5/2}$	0,10	0,10	0,09	0,89364	0,92372	0,95355	8,78(17)	9,88(17)	1,11(18)
		0,09722231[b]	0,09476039[b]	0,0923743[b]				1,35(13)[b]	1,42(13)[b]	1,50(13)[b]
$1s_{1/2}$	$3d_{3/2}$	0,11	0,11	0,10	-2,03229	-2,00706	-1,98167	1,28(15)	1,43(15)	1,59(15)
		0,10695042[a]	0,10421268[a]	0,10155914[a]				2,83(14)[a]	3,00(14)[a]	3,19(14)[a]
$1s_{1/2}$	$4d_{3/2}$	0,10	0,10	0,10	-1,80691	-1,77520	-1,74351	2,38(15)	2,69(15)	3,04(15)
		0,10193101[a]	0,09933626[a]	0,09682137[a]				1,56(14)[a]	1,66(14)[a]	1,76(14)[a]
$1s_{1/2}$	$5d_{3/2}$	0,10	0,10	0,10	-1,52689	-1,49284	-1,45894	4,75(15)	5,39(15)	6,12(15)
		0,09976134[a]	0,0972279[a]	0,09477247[a]				8,81(13)[a]	9,36(13)[a]	9,94(13)[a]
$1s_{1/2}$	$6d_{3/2}$	0,10	0,10	0,10	-1,19810	-1,16372	-1,12959	1,04(16)	1,18(16)	1,34(16)
		0,09862393[a]	0,09612259[a]	0,09369828[a]				5,33(13)[a]	5,66(13)[a]	6,01(13)[a]

[a,b] Jitrik ve Bunge, 2004, [c] Pal'chikov, 1998.

Tablo 3.4. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			A_{ki} (s^{-1})		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$1s_{1/2}$	$7d_{3/2}$	0,10	0,10	0,10	-0,79711	-0,76333	-0,72989	2,64(16)	3,00(16)	3,40(16)
		0,09795269[a]	0,09547032[a]	0,09306439[a]				3,44(13)[a]	3,65(13)[a]	3,87(13)[a]
$1s_{1/2}$	$8d_{3/2}$	0,10	0,10	0,10	-0,24921	-0,21678	-0,18461	9,42(16)	1,07(17)	1,20(17)
		0,09752321[b]	0,09505298[b]	0,09265883[b]				2,33(13)[b]	2,48(13)[b]	2,63(13)[b]
$1s_{1/2}$	$9d_{3/2}$	0,10	0,10	0,09	0,70747	0,73739	0,76705	8,58(17)	9,65(17)	1,08(18)
		0,09723173[b]	0,09476976[b]	0,09238361[b]				1,65(13)[b]	1,76(13)[b]	1,86(13)[b]
$2p_{1/2}$	$4f_{5/2}$	0,49	0,48	0,46	-2,13644	-2,12672	-2,11701	3,40(13)	3,66(13)	3,94(13)
		0,47390908[a]	0,46096799[a]	0,44842682[a]				2,56(13)[a]	2,72(13)[a]	2,90(13)[a]
$2p_{1/2}$	$5f_{5/2}$	0,44	0,43	0,42	-2,22506	-2,20991	-2,19468	3,36(13)	3,66(13)	3,99(13)
		0,4314224[a]	0,4198466[a]	0,40862747[a]				1,80(13)[a]	1,92(13)[a]	2,05(13)[a]
$2p_{1/2}$	$6f_{5/2}$	0,42	0,41	0,40	-2,16580	-2,14430	-2,12272	4,25(13)	4,70(13)	5,19(13)
		0,41134482[a]	0,40039927[a]	0,38979063[a]				1,18(13)[a]	1,26(13)[a]	1,34(13)[a]
$2p_{1/2}$	$7f_{5/2}$	0,41	0,40	0,39	-1,91118	-1,88419	-1,85722	8,08(13)	9,05(13)	1,01(14)
		0,40011561[a]	0,38951863[a]	0,3792477[a]				7,93(12)[a]	8,46(12)[a]	9,02(12)[a]
$2p_{1/2}$	$8f_{5/2}$	0,40	0,39	0,38	-1,40871	-1,37844	-1,34837	2,67(14)	3,01(14)	3,39(14)
		0,39315399[b]	0,38277181[b]	0,37270899[b]				5,51(12)[b]	5,88(12)[b]	6,27(12)[b]
$2p_{1/2}$	$9f_{5/2}$	0,40	0,39	0,38	-0,41675	-0,38626	-0,35604	2,68(15)	3,02(15)	3,41(15)
		0,38852342[b]	0,37828362[b]	0,36835873[b]				3,96(12)[b]	4,23(12)[b]	4,51(12)[b]
$2p_{1/2}$	$2p_{3/2}$	3,51	3,35	3,20	-4,50773	-4,46797	-4,42857	4,20(9)	5,05(9)	6,05(9)
		2,86295501[a]	2,71559504[a]	2,57649453[a]				8,53(9)[a]	1,05(10)[a]	1,28(10)[a]
$2p_{1/2}$	$3p_{3/2}$	0,63	0,62	0,60	-2,97768	-2,98521	-2,99369	4,36(12)	4,52(12)	4,67(12)
		0,61039999[a]	0,59299717[a]	0,57613571[a]				7,78(12)[a]	8,31(12)[a]	8,87(12)[a]
						-4,71626[c]			8,69(12)[c]	

Tablo 3.4. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			A_{ki} (s^{-1})		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$2p_{1/2}$	$4p_{3/2}$	0,49	0,48	0,47	-4,69042	-4,49684	-4,33157	1,41(11)	2,32(11)	3,57(11)
		0,4764854[a]	0,46351993[a]	0,45095402[a]				3,75(12)[a]	4,02(12)[a]	4,30(12)[a]
$2p_{1/2}$	$5p_{3/2}$	0,44	0,43	0,42	-2,98106	-2,92811	-2,87624	8,81(12)	1,05(13)	1,24(13)
		0,4325136[a]	0,4209285[a]	0,40969992[a]				1,98(12)[a]	2,13(12)[a]	2,28(12)[a]
$2p_{1/2}$	$6p_{3/2}$	0,42	0,41	0,40	-2,37172	-2,32969	-2,28820	3,96(13)	4,59(13)	5,31(13)
		0,41191756[a]	0,3898564[a]	0,39035399[a]				1,16(12)[a]	7,88(11)[a]	1,34(12)[a]
$2p_{1/2}$	$7p_{3/2}$	0,41	0,40	0,39	-1,85380	-1,81625	-1,77906	1,38(14)	1,59(14)	1,82(14)
		0,40045607[a]	0,3898564[a]	0,37958273[a]				7,34(11)[a]	7,88(11)[a]	8,46(11)[a]
$2p_{1/2}$	$8p_{3/2}$	0,40	0,39	0,38	-1,24338	-1,20877	-1,17452	5,85(14)	6,66(14)	7,58(14)
		0,39337373[b]	0,38298985[b]	0,37292528[b]				4,93(11)[b]	5,29(11)[b]	5,67(11)[b]
$2p_{1/2}$	$9p_{3/2}$	0,40	0,39	0,38	-0,23868	-0,20731	-0,17624	6,06(15)	6,85(15)	7,73(15)
		0,38867386[b]	0,37843289[b]	0,36850682[b]				3,46(11)[b]	3,72(11)[b]	3,99(11)[b]
$2p_{3/2}$	$4f_{7/2}$	0,57	0,55	0,54	-1,86956	-1,86063	-1,85180	3,51(13)	3,75(13)	4,00(13)
		0,56617823[a]	0,55347718[a]	0,54118313[a]				3,16(13)[a]	3,37(13)[a]	3,59(13)[a]
$2p_{3/2}$	$5f_{7/2}$	0,51	0,50	0,49	-2,10525	-2,09518	-2,08518	2,54(13)	2,72(13)	2,91(13)
		0,50725159[a]	0,49591126[a]	0,48493432[a]				2,14(13)[a]	2,28(13)[a]	2,42(13)[a]
$2p_{3/2}$	$6f_{7/2}$	0,48	0,47	0,46	-2,26122	-2,24882	-2,23647	1,98(13)	2,13(13)	2,30(13)
		0,47999047[a]	0,46927402[a]	0,45890098[a]				1,37(13)[a]	1,46(13)[a]	1,55(13)[a]
$2p_{3/2}$	$7f_{7/2}$	0,46	0,45	0,44	-2,27423	-2,25779	-2,24132	2,05(13)	2,23(13)	2,42(13)
		0,46489903[a]	0,45452669[a]	0,44448674[a]				9,08(12)[a]	9,68(12)[a]	1,03(13)[a]
$2p_{3/2}$	$8f_{7/2}$	0,46	0,45	0,44	-2,03712	-2,01512	-1,99323	3,69(13)	4,06(13)	4,46(13)
		0,45559664[b]	0,44543607[b]	0,43560111[b]				6,27(12)[b]	6,68(12)[b]	7,11(12)[b]
$2p_{3/2}$	$9f_{7/2}$	0,45	0,44	0,43	-1,22982	-1,20312	-1,17661	2,43(14)	2,70(14)	3,01(14)
		0,44943096[b]	0,43941065[b]	0,42971145[b]				4,49(12)[b]	4,78(12)[b]	5,09(12)[b]

Tablo 3.4. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			A_{ki} (s^{-1})		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$2p_{3/2}$	$4f_{5/2}$	0,57	0,56	0,54	-2,63469	-2,62537	-2,61614	7,99(12)	8,54(12)	9,12(12)
		0,56791724[a]	0,55521483[a]	0,5429194[a]				7,43(12)[a]	7,93(12)[a]	8,45(12)[a]
$2p_{3/2}$	$5f_{5/2}$	0,51	0,50	0,49	-2,87964	-2,86925	-2,85892	5,68(12)	6,09(12)	6,52(12)
		0,50796889[a]	0,49662817[a]	0,48565083[a]				4,95(12)[a]	5,28(12)[a]	5,63(12)[a]
$2p_{3/2}$	$6f_{5/2}$	0,48	0,47	0,46	-3,03724	-3,02440	-3,01160	4,42(12)	4,76(12)	5,13(12)
		0,48036254[a]	0,46964592[a]	0,45927271[a]				3,16(12)[a]	3,37(12)[a]	3,59(12)[a]
$2p_{3/2}$	$7f_{5/2}$	0,47	0,45	0,44	-3,04751	-3,03048	-3,01342	4,61(12)	5,01(12)	5,45(12)
		0,46511883[a]	0,4547464[a]	0,44470635[a]				2,08(12)[a]	2,22(12)[a]	2,37(12)[a]
$2p_{3/2}$	$8f_{5/2}$	0,46	0,45	0,44	-2,80928	-2,78681	-2,76445	8,30(12)	9,15(12)	1,01(13)
		0,455738[b]	0,44557737[b]	0,43574234[b]				1,43(12)[b]	1,53(12)[b]	1,63(12)[b]
$2p_{3/2}$	$9f_{5/2}$	0,45	0,44	0,43	-2,01930	-1,99268	-1,96625	5,26(13)	5,85(13)	6,50(13)
		0,44952751[b]	0,43950716[b]	0,42980792[b]				1,02(12)[b]	1,09(12)[b]	1,16(12)[b]
$2p_{3/2}$	$3p_{1/2}$	0,82	0,80	0,78	-2,66439	-2,65829	-2,65239	1,08(13)	1,15(13)	1,21(13)
		0,84403766[a]	0,82764688[a]	0,81183353[a]				1,26(13)[a]	1,34(13)[a]	1,42(13)[a]
						-4,42098[c]			1,42(13)[c]	
$2p_{3/2}$	$4p_{1/2}$	0,58	0,57	0,55	-4,04823	-4,07968	-4,11403	8,91(11)	8,67(11)	8,37(11)
		0,58616924[a]	0,57359165[a]	0,56142507[a]				3,53(12)[a]	3,69(12)[a]	3,84(12)[a]
$2p_{3/2}$	$5p_{1/2}$	0,51	0,50	0,49	-4,57895	-4,47585	-4,38052	3,36(11)	4,45(11)	5,80(11)
		0,51524642[a]	0,50395018[a]	0,49301871[a]				1,49(12)[a]	1,55(12)[a]	1,60(12)[a]
$2p_{3/2}$	$6p_{1/2}$	0,48	0,47	0,46	-3,52443	-3,47641	-3,42954	4,29(12)	5,01(12)	5,84(12)
		0,48407324[a]	0,47337783[a]	0,46302646[a]				7,77(11)[a]	8,00(11)[a]	8,22(11)[a]
$2p_{3/2}$	$7p_{1/2}$	0,47	0,46	0,45	-2,94777	-2,90972	-2,87220	1,73(13)	1,98(13)	2,25(13)
		0,467288[a]	0,45692739[a]	0,44689953[a]				4,58(11)[a]	4,70(11)[a]	4,81(11)[a]

Tablo 3.4. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			A_{ki} (s^{-1})		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$2p_{3/2}$	$8p_{1/2}$	0,46	0,45	0,44	-2,34863	-2,31529	-2,28239	7,18(13)	8,11(13)	9,15(13)
		0,45712301[b]	0,44696967[b]	0,43714214[b]				2,93(11)[b]	3,00(11)[b]	3,07(11)[b]
$2p_{3/2}$	$9p_{1/2}$	0,45	0,44	0,43	-1,40348	-1,37394	-1,34470	6,51(14)	7,29(14)	8,15(14)
		0,45046859[b]	0,44045305[b]	0,43075876[b]				1,99(11)[b]	2,04(11)[b]	2,08(11)[b]
$2s_{1/2}$	$3d_{5/2}$	0,65	0,63	0,61	-1,77186	-1,76273	-1,75373	4,51(13)	4,85(13)	5,21(13)
		0,60057888[a]	0,58329867[a]	0,56656107[a]				5,33(13)[a]	5,78(13)[a]	6,26(13)[a]
						-3,85374[c]			5,78(13)[c]	
$2s_{1/2}$	$4d_{5/2}$	0,50	0,49	0,48	-3,08374	-3,08204	-3,08088	3,65(12)	3,85(12)	4,05(12)
		0,47390908[a]	0,46096799[a]	0,44842682[a]				1,15(13)[a]	1,26(13)[a]	1,38(13)[a]
$2s_{1/2}$	$5d_{5/2}$	0,45	0,44	0,43	-4,17128	-4,08859	-4,01006	3,63(11)	4,62(11)	5,81(11)
		0,4314224[a]	0,4198466[a]	0,40862747[a]				4,02(12)[a]	4,45(12)[a]	4,93(12)[a]
$2s_{1/2}$	$6d_{5/2}$	0,43	0,42	0,41	-2,79045	-2,75215	-2,71436	9,66(12)	1,11(13)	1,27(13)
		0,41134482[a]	0,40039927[a]	0,38979063[a]				1,85(12)[a]	2,06(12)[a]	2,29(12)[a]
$2s_{1/2}$	$7d_{5/2}$	0,42	0,41	0,40	-2,11546	-2,08243	-2,04978	4,84(13)	5,49(13)	6,21(13)
		0,40011561[a]	0,38951863[a]	0,3792477[a]				1,00(12)[a]	1,12(12)[a]	1,25(12)[a]
$2s_{1/2}$	$8d_{5/2}$	0,41	0,40	0,39	-1,42644	-1,39604	-1,36596	2,45(14)	2,76(14)	3,11(14)
		0,39315399[b]	0,38277181[b]	0,37270899[b]				6,08(11)[b]	6,81(11)[b]	7,62(11)[b]
$2s_{1/2}$	$9d_{5/2}$	0,41	0,40	0,39	-0,36175	-0,33404	-0,30667	2,92(15)	3,27(15)	3,65(15)
		0,38852342[b]	0,37828362[b]	0,36835873[b]				3,97(11)[b]	4,46(11)[b]	5,00(11)[b]
$2s_{1/2}$	$3d_{3/2}$	0,66	0,64	0,62	-1,98179	-1,97380	-1,96597	4,03(13)	4,32(13)	4,62(13)
		0,61039999[a]	0,59299717[a]	0,57613571[a]				5,12(13)[a]	5,54(13)[a]	6,00(13)[a]
						-3,87179[c]			5,55(13)[c]	
$2s_{1/2}$	$4d_{3/2}$	0,50	0,49	0,48	-3,68111	-3,70161	-3,72431	1,37(12)	1,37(12)	1,37(12)
		0,4764854[a]	0,46351993[a]	0,45095402[a]				9,11(12)[a]	9,99(12)[a]	1,10(13)[a]

Tablo 3.4. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			A_{ki} (s^{-1})		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$2s_{1/2}$	$5d_{3/2}$	0,46	0,44	0,43	-3,58673	-3,53022	-3,47521	2,09(12)	2,49(12)	2,97(12)
		0,4325136[a]	0,4209285[a]	0,40969992[a]				2,82(12)[a]	3,12(12)[a]	3,45(12)[a]
$2s_{1/2}$	$6d_{3/2}$	0,43	0,42	0,41	-2,73878	-2,70068	-2,66309	1,63(13)	1,87(13)	2,14(13)
		0,41191756[a]	0,40096736[a]	0,39035399[a]				1,19(12)[a]	1,32(12)[a]	1,47(12)[a]
$2s_{1/2}$	$7d_{3/2}$	0,42	0,41	0,40	-2,17184	-2,13834	-2,10525	6,37(13)	7,23(13)	8,18(13)
		0,40045607[a]	0,3898564[a]	0,37958273[a]				6,06(11)[a]	6,77(11)[a]	7,57(11)[a]
$2s_{1/2}$	$8d_{3/2}$	0,41	0,40	0,39	-1,54552	-1,51485	-1,48453	2,80(14)	3,15(14)	3,55(14)
		0,39337373[b]	0,38298985[b]	0,37292528[b]				3,51(11)[b]	3,93(11)[b]	4,41(11)[b]
$2s_{1/2}$	$9d_{3/2}$	0,41	0,40	0,39	-0,54552	-0,51798	-0,49078	2,87(15)	3,21(15)	3,58(15)
		0,38867386[b]	0,37843289[b]	0,36850682[b]				2,22(11)[b]	2,49(11)[b]	2,80(11)[b]
$3d_{3/2}$	$5g_{7/2}$	1,47	1,43	1,40	-1,80412	-1,79540	-1,78679	6,09(12)	6,51(12)	6,95(12)
		1,46535657[a]	1,43187589[a]	1,39946845[a]				5,87(12)[a]	6,27(12)[a]	6,69(12)[a]
$3d_{3/2}$	$6g_{7/2}$	1,26	1,23	1,20	-2,05782	-2,04849	-2,03926	4,61(12)	4,93(12)	5,27(12)
		1,25882097[a]	1,23024556[a]	1,20258592[a]				4,37(12)[a]	4,66(12)[a]	4,98(12)[a]
$3d_{3/2}$	$7g_{7/2}$	1,16	1,13	1,11	-2,25290	-2,24231	-2,23178	3,46(12)	3,71(12)	3,98(12)
		1,16006028[a]	1,13380541[a]	1,10839187[a]				3,00(12)[a]	3,21(12)[a]	3,42(12)[a]
$3d_{3/2}$	$8g_{7/2}$	1,10	1,08	1,05	-2,30904	-2,29507	-2,28115	3,36(12)	3,63(12)	3,92(12)
$3d_{3/2}$	$9g_{7/2}$	1,07	1,04	1,02	-1,90112	-1,87944	-1,85783	9,17(12)	1,01(13)	1,11(13)
$3d_{3/2}$	$3d_{5/2}$	37,58	35,92	34,34	-6,65958	-6,62084	-6,58250	1,72(5)	2,06(5)	2,47(5)
		37,32707188[a]	35,66474239[a]	34,09174475[a]				1,71(5)[a]	2,05(5)[a]	2,45(5)[a]
$3d_{3/2}$	$4d_{5/2}$	2,12	2,07	2,02	-3,26273	-3,25487	-3,24715	1,35(11)	1,44(11)	1,54(11)
		2,11936528[a]	2,07039613[a]	2,02299707[a]				1,40(11)[a]	1,50(11)[a]	1,60(11)[a]
$3d_{3/2}$	$5d_{5/2}$	1,47	1,44	1,41	-4,01835	-4,01454	-4,01101	4,92(10)	5,20(10)	5,49(10)
		1,47135868[a]	1,43786904[a]	1,40545252[a]				6,93(10)[a]	7,41(10)[a]	7,92(10)[a]

Tablo 3.4. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			A_{ki} (s^{-1})		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$3d_{3/2}$	$6d_{5/2}$	1,26	1,23	1,20	-4,88179	-4,90083	-4,92159	9,18(9)	9,20(9)	9,17(9)
		1,26138332[a]	1,23280484[a]	1,20514209[a]				3,86(10)[a]	4,12(10)[a]	4,41(10)[a]
$3d_{3/2}$	$7d_{5/2}$	1,16	1,13	1,11	-5,37509	-5,28006	-5,19118	3,48(9)	4,53(9)	5,81(9)
		1,16142985[a]	1,1351735[a]	1,10975848[a]				2,36(10)[a]	2,53(10)[a]	2,70(10)[a]
$3d_{3/2}$	$8d_{5/2}$	1,10	1,08	1,06	-3,83611	-3,79598	-3,75651	1,33(11)	1,53(11)	1,75(11)
		1,10465179[b]	1,07971084[b]	1,05556908[b]				1,55(10)[b]	1,66(10)[b]	1,77(10)[b]
$3d_{3/2}$	$9d_{5/2}$	1,07	1,04	1,02	-2,53898	-2,50774	-2,47683	2,81(12)	3,17(12)	3,56(12)
		1,06885865[b]	1,04474593[b]	1,02140585[b]				1,07(10)[b]	1,15(10)[b]	1,23(10)[b]
$3d_{3/2}$	$3s_{1/2}$	19,15	18,50	17,88	-5,31880	-5,29356	-5,26891	2,18(7)	2,48(7)	2,81(7)
		9,59699342[a]	9,10245245[a]	8,63570469[a]				6,20(8)[a]	7,67(8)[a]	9,48(8)[a]
$3d_{3/2}$	$4s_{1/2}$	2,25	2,20	2,16	-3,43668	-3,42947	-3,42248	2,40(11)	2,55(11)	2,71(11)
		2,39801612[a]	2,3513074[a]	2,30625355[a]				3,06(11)[a]	3,27(11)[a]	3,50(11)[a]
$3d_{3/2}$	$5s_{1/2}$	1,50	1,47	1,43	-4,44790	-4,46045	-4,47420	5,29(10)	5,38(10)	5,45(10)
		1,53412267[a]	1,50101047[a]	1,46898387[a]				1,69(11)[a]	1,80(11)[a]	1,92(11)[a]
$3d_{3/2}$	$6s_{1/2}$	1,27	1,24	1,22	-5,59929	-5,45716	-5,33066	5,19(9)	7,53(9)	1,05(10)
		1,28729531[a]	1,25885571[a]	1,23133625[a]				1,01(11)[a]	1,07(11)[a]	1,14(11)[a]
$3d_{3/2}$	$7s_{1/2}$	1,17	1,14	1,11	-3,97030	-3,92440	-3,87941	2,63(11)	3,05(11)	3,55(11)
		1,17505039[a]	1,1488624[a]	1,12351787[a]				6,43(10)[a]	6,83(10)[a]	7,26(10)[a]
$3d_{3/2}$	$8s_{1/2}$	1,11	1,08	1,06	-3,11213	-3,07664	-3,04162	2,10(12)	2,39(12)	2,71(12)
		1,11282434[b]	1,08792262[b]	1,0638213[b]				4,32(10)[b]	4,60(10)[b]	4,88(10)[b]
$3d_{3/2}$	$9s_{1/2}$	1,07	1,05	1,02	-2,00176	-1,97135	-1,94123	2,90(13)	3,26(13)	3,65(13)
		1,07419454[b]	1,05010658[b]	1,02679204[b]				3,04(10)[b]	3,23(10)[b]	3,43(10)[b]
$3d_{5/2}$	$5g_{9/2}$	1,52	1,49	1,46	-1,64406	-1,63498	-1,62601	6,54(12)	6,98(12)	7,45(12)
		1,52143693[a]	1,48797265[a]	1,45558185[a]				6,31(12)[a]	6,73(12)[a]	7,17(12)[a]

Tablo 3.4. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			A_{ki} (s^{-1})		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$3d_{5/2}$	$6g_{9/2}$	1,30	1,27	1,24	-1,91459	-1,90538	-1,89626	4,80(12)	5,12(12)	5,47(12)
		1,30114546[a]	1,27258915[a]	1,24494889[a]				4,62(12)[a]	4,93(12)[a]	5,25(12)[a]
$3d_{5/2}$	$7g_{9/2}$	1,20	1,17	1,14	-2,14078	-2,13117	-2,12167	3,37(12)	3,60(12)	3,85(12)
		1,19641154[a]	1,17017558[a]	1,14478124[a]				3,15(12)[a]	3,36(12)[a]	3,59(12)[a]
$3d_{5/2}$	$8g_{9/2}$	1,14	1,11	1,09	-2,28183	-2,27075	-2,25972	2,70(12)	2,89(12)	3,10(12)
$3d_{5/2}$	$9g_{9/2}$	1,10	1,08	1,05	-2,12281	-2,10599	-2,08921	4,16(12)	4,52(12)	4,91(12)
$3d_{5/2}$	$5g_{7/2}$	1,52	1,49	1,46	-2,73770	-2,72854	-2,71949	6,56(11)	7,00(11)	7,47(11)
			1,49176771[a]	1,45937593[a]					6,86(11)[a]	7,32(11)[a]
$3d_{5/2}$	$6g_{7/2}$	1,30	1,27	1,25	-3,01680	-3,00769	-2,99868	4,73(11)	5,05(11)	5,38(11)
		1,30275518[a]	1,2741987[a]	1,24655825[a]				4,67(11)[a]	4,98(11)[a]	5,31(11)[a]
$3d_{5/2}$	$7g_{7/2}$	1,20	1,17	1,15	-3,24895	-3,23955	-3,23026	3,28(11)	3,50(11)	3,74(11)
		1,19726932[a]	1,17103332[a]	1,14563892[a]				3,17(11)[a]	3,38(11)[a]	3,60(11)[a]
$3d_{5/2}$	$8g_{7/2}$	1,14	1,11	1,09	-3,39422	-3,38336	-3,37256	2,60(11)	2,79(11)	2,99(11)
$3d_{5/2}$	$9g_{7/2}$	1,10	1,08	1,05	-3,23933	-3,22275	-3,20621	3,97(11)	4,32(11)	4,69(11)
$3d_{5/2}$	$4d_{3/2}$	2,30	2,25	2,20	-3,21857	-3,20962	-3,20080	1,91(11)	2,03(11)	2,16(11)
		2,30606038[a]	2,25725001[a]	2,21001228[a]				1,96(11)[a]	2,09(11)[a]	2,23(11)[a]
$3d_{5/2}$	$5d_{3/2}$	1,54	1,51	1,48	-4,02286	-4,01845	-4,01426	6,65(10)	7,02(10)	7,40(10)
		1,54558113[a]	1,5121437[a]	1,47978015[a]				8,29(10)[a]	8,81(10)[a]	9,35(10)[a]
$3d_{5/2}$	$6d_{3/2}$	1,31	1,28	1,25	-4,68719	-4,69315	-4,69978	2,00(10)	2,06(10)	2,12(10)
		1,31128623[a]	1,28274035[a]	1,25511065[a]				4,30(10)[a]	4,56(10)[a]	4,84(10)[a]
$3d_{5/2}$	$7d_{3/2}$	1,20	1,17	1,15	-6,10396	-6,21939	-6,35791	9,11(8)	7,30(8)	5,54(8)
		1,20178934[a]	1,1755586[a]	1,15016954[a]				2,53(10)[a]	2,69(10)[a]	2,85(10)[a]
$3d_{5/2}$	$8d_{3/2}$	1,14	1,11	1,09	-4,76603	-4,71390	-4,66319	2,20(10)	2,60(10)	3,05(10)
		1,14018382[b]	1,11526522[b]	1,09114611[b]				1,63(10)[b]	1,72(10)[b]	1,82(10)[b]

Tablo 3.4. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			A_{ki} (s^{-1})		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$3d_{5/2}$	$9d_{3/2}$	1,10	1,08	1,05	-3,31560	-3,28403	-3,25283	6,66(11)	7,48(11)	8,40(11)
		1,10157515[b]	1,07748299[b]	1,05416377[b]				1,11(10)[b]	1,17(10)[b]	1,24(10)[b]
$3d_{5/2}$	$3s_{1/2}$	12,69	12,21	11,76	-4,57506	-4,54476	-4,51495	1,84(8)	2,13(8)	2,46(8)
		7,63419923[a]	7,25166325[a]	6,89033031[a]				2,12(9)[a]	2,61(9)[a]	3,21(9)[a]
$3d_{5/2}$	$4s_{1/2}$	2,40	2,35	2,30	-3,17184	-3,16214	-3,15260	3,90(11)	4,16(11)	4,44(11)
		2,56264929[a]	2,51726586[a]	2,47358792[a]				4,31(11)[a]	4,60(11)[a]	4,89(11)[a]
$3d_{5/2}$	$5s_{1/2}$	1,56	1,53	1,49	-3,95734	-3,95444	-3,95185	1,51(11)	1,59(11)	1,67(11)
		1,59987675[a]	1,56695855[a]	1,53513135[a]				2,31(11)[a]	2,45(11)[a]	2,59(11)[a]
$3d_{5/2}$	$6s_{1/2}$	1,32	1,29	1,26	-4,85791	-4,88172	-4,90763	2,67(10)	2,64(10)	2,60(10)
		1,33327588[a]	1,3049152[a]	1,27747655[a]				1,37(11)[a]	1,45(11)[a]	1,53(11)[a]
$3d_{5/2}$	$7s_{1/2}$	1,20	1,18	1,15	-5,26546	-5,17308	-5,08720	1,25(10)	1,62(10)	2,06(10)
		1,2132431[a]	1,18710233[a]	1,16180602[a]				8,72(10)[a]	9,21(10)[a]	9,71(10)[a]
$3d_{5/2}$	$8s_{1/2}$	1,14	1,12	1,09	-3,80900	-3,76956	-3,73078	3,98(11)	4,55(11)	5,20(11)
		1,14702022[b]	1,12215294[b]	1,09808672[b]				5,86(10)[b]	6,19(10)[b]	6,52(10)[b]
$3d_{5/2}$	$9s_{1/2}$	1,10	1,08	1,05	-2,57868	-2,54846	-2,51855	7,25(12)	8,13(12)	9,10(12)
		1,10602357[b]	1,08196373[b]	1,05867782[b]				4,12(10)[b]	4,35(10)[b]	4,58(10)[b]
$3p_{1/2}$	$4f_{5/2}$	1,87	1,82	1,77	-1,85476	-1,84425	-1,83385	4,46(12)	4,81(12)	5,18(12)
		1,73599454[a]	1,68673926[a]	1,63903688[a]				5,37(12)[a]	5,84(12)[a]	6,35(12)[a]
$3p_{1/2}$	$5f_{5/2}$	1,34	1,31	1,28	-3,49667	-3,48039	-3,46446	1,96(11)	2,14(11)	2,33(11)
		1,2757653[a]	1,24172062[a]	1,20873249[a]				6,07(11)[a]	6,83(11)[a]	7,67(11)[a]
$3p_{1/2}$	$6f_{5/2}$	1,17	1,14	1,11	-4,34804	-4,32751	-4,30641	3,66(10)	4,03(10)	4,44(10)
		1,1148524[a]	1,08575405[a]	1,05755647[a]				8,47(10)[a]	1,01(11)[a]	1,20(11)[a]
$3p_{1/2}$	$7f_{5/2}$	1,08	1,06	1,03	-3,24473	-3,22021	-3,19575	5,42(11)	6,01(11)	6,67(11)
		1,03604723[a]	1,00930263[a]	0,98338544[a]				1,02(10)[a]	1,39(10)[a]	1,85(10)[a]

Tablo 3.4. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			A_{ki} (s^{-1})		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$3p_{1/2}$	$8f_{5/2}$	1,03	1,01	0,98	-2,50801	-2,48156	-2,45535	3,24(12)	3,62(12)	4,03(12)
		0,99062674[b]	0,96521892[b]	0,94059698[b]				3,15(8)[b]	8,64(8)[b]	1,78(9)[b]
$3p_{1/2}$	$9f_{5/2}$	1,00	0,98	0,95	-1,41569	-1,38969	-1,36402	4,27(13)	4,75(13)	5,29(13)
		0,96174496[b]	0,93717988[b]	0,91337458[b]				4,34(8)[b]	1,50(8)[b]	7,85(6)[b]
$3p_{1/2}$	$3p_{3/2}$	15,20	14,60	14,03	-4,84326	-4,81159	-4,78042	1,04(8)	1,21(8)	1,40(8)
		9,59699342[a]	9,10245245[a]	8,63570469[a]				8,42(8)[a]	1,04(9)[a]	1,28(9)[a]
$3p_{1/2}$	$4p_{3/2}$	1,90	1,85	1,81	-2,83241	-2,82801	-2,82382	6,80(11)	7,22(11)	7,66(11)
		1,7710729[a]	1,72141826[a]	1,67331224[a]				8,14(11)[a]	8,69(11)[a]	9,26(11)[a]
$3p_{1/2}$	$5p_{3/2}$	1,35	1,32	1,29	-3,81813	-3,83366	-3,85050	1,39(11)	1,40(11)	1,42(11)
		1,28535475[a]	1,25123214[a]	1,21816481[a]				5,20(11)[a]	5,57(11)[a]	5,96(11)[a]
$3p_{1/2}$	$6p_{3/2}$	1,17	1,14	1,12	-4,59554	-4,49175	-4,39605	3,09(10)	4,12(10)	5,39(10)
		1,11906955[a]	1,08994154[a]	1,06171379[a]				3,24(11)[a]	3,47(11)[a]	3,72(11)[a]
$3p_{1/2}$	$7p_{3/2}$	1,08	1,06	1,03	-3,17336	-3,13243	-3,09233	9,55(11)	1,10(12)	1,27(12)
		1,03833308[a]	1,01157359[a]	0,98564122[a]				2,11(11)[a]	2,26(11)[a]	2,43(11)[a]
$3p_{1/2}$	$8p_{3/2}$	1,03	1,01	0,98	-2,34118	-2,30921	-2,27770	7,13(12)	8,06(12)	9,08(12)
		0,99202308[b]	0,96660654[b]	0,94197573[b]				1,44(11)[b]	1,55(11)[b]	1,66(11)[b]
$3p_{1/2}$	$9p_{3/2}$	1,00	0,98	0,95	-1,23879	-1,21171	-1,18500	9,61(13)	1,07(14)	1,20(14)
		0,96266728[b]	0,93809661[b]	0,9142856[b]				1,02(11)[b]	1,10(11)[b]	1,18(11)[b]
$3p_{3/2}$	$4f_{7/2}$	2,10	2,05	2,01	-1,67123	-1,66128	-1,65143	4,02(12)	4,31(12)	4,62(12)
		2,09534782[a]	2,04643795[a]	1,99909879[a]				3,99(12)[a]	4,28(12)[a]	4,59(12)[a]
$3p_{3/2}$	$5f_{7/2}$	1,47	1,44	1,40	-3,80649	-3,78952	-3,77273	6,03(10)	6,57(10)	7,15(10)
		1,46535657[a]	1,43187589[a]	1,39946845[a]				8,84(10)[a]	9,71(10)[a]	1,07(11)[a]
$3p_{3/2}$	$6f_{7/2}$	1,26	1,23	1,21	-3,94009	-3,92970	-3,91929	6,01(10)	6,45(10)	6,91(10)
		1,25882097[a]	1,23024556[a]	1,20258592[a]				1,59(10)[a]	1,62(10)[a]	1,63(10)[a]

Tablo 3.4. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			A_{ki} (s^{-1})		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$3p_{3/2}$	$7f_{7/2}$	1,16	1,14	1,11	-3,36846	-3,35110	-3,33375	2,64(11)	2,88(11)	3,13(11)
		1,16006028[a]	1,13380541[a]	1,10839187[a]				6,05(10)[a]	6,33(10)[a]	6,61(10)[a]
$3p_{3/2}$	$8f_{7/2}$	1,11	1,08	1,06	-2,87730	-2,85422	-2,83121	9,04(11)	9,98(11)	1,10(12)
		1,10382168[b]	1,07888158[b]	1,05474067[b]				7,42(10)[b]	7,80(10)[b]	8,20(10)[b]
$3p_{3/2}$	$9f_{7/2}$	1,07	1,05	1,02	-1,91671	-1,88996	-1,86345	8,82(12)	9,82(12)	1,09(13)
		1,06831297[b]	1,04420078[b]	1,02086124[b]				7,12(10)[b]	7,51(10)[b]	7,91(10)[b]
$3p_{3/2}$	$4f_{5/2}$	2,13	2,08	2,03	-2,46507	-2,45547	-2,44598	8,42(11)	9,02(11)	9,65(11)
		2,11936528[a]	2,07039613[a]	2,02299707[a]				8,42(11)[a]	9,02(11)[a]	9,66(11)[a]
$3p_{3/2}$	$5f_{5/2}$	1,47	1,44	1,41	-4,96679	-4,95713	-4,94776	5,52(9)	5,91(9)	6,31(9)
		1,47135868[a]	1,43786904[a]	1,40545252[a]				9,80(9)[a]	1,07(10)[a]	1,16(10)[a]
$3p_{3/2}$	$6f_{5/2}$	1,26	1,24	1,21	-4,48823	-4,47281	-4,45736	2,26(10)	2,45(10)	2,66(10)
		1,26138332[a]	1,23280484[a]	1,20514209[a]				8,97(9)[a]	9,44(9)[a]	9,92(9)[a]
$3p_{3/2}$	$7f_{5/2}$	1,16	1,14	1,11	-4,04506	-4,02585	-4,00665	7,40(10)	8,10(10)	8,86(10)
		1,16142985[a]	1,1351735[a]	1,10975848[a]				2,10(10)[a]	2,22(10)[a]	2,35(10)[a]
$3p_{3/2}$	$8f_{5/2}$	1,11	1,08	1,06	-3,60509	-3,58130	-3,55758	2,25(11)	2,49(11)	2,75(11)
		1,10465179[b]	1,07971084[b]	1,05556908[b]				2,32(10)[b]	2,46(10)[b]	2,61(10)[b]
$3p_{3/2}$	$9f_{5/2}$	1,07	1,05	1,02	-2,69493	-2,66827	-2,64185	1,96(12)	2,18(12)	2,42(12)
		1,06885865[b]	1,04474593[b]	1,02140585[b]				2,12(10)[b]	2,26(10)[b]	2,40(10)[b]
$3p_{3/2}$	$4p_{1/2}$	2,28	2,23	2,19	-2,65549	-2,64702	-2,63870	1,41(12)	1,51(12)	1,60(12)
		2,39801612[a]	2,3513074[a]	2,30625355[a]				1,47(12)[a]	1,57(12)[a]	1,67(12)[a]
$3p_{3/2}$	$5p_{1/2}$	1,51	1,47	1,44	-3,58946	-3,59147	-3,59390	3,78(11)	3,94(11)	4,09(11)
		1,53412267[a]	1,50101047[a]	1,46898387[a]				5,83(11)[a]	6,12(11)[a]	6,41(11)[a]
$3p_{3/2}$	$6p_{1/2}$	1,28	1,25	1,22	-4,97158	-5,05200	-5,14430	2,19(10)	1,90(10)	1,61(10)
		1,28729531[a]	1,25885571[a]	1,23133625[a]				2,97(11)[a]	3,10(11)[a]	3,22(11)[a]

Tablo 3.4. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			A_{ki} (s^{-1})		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$3p_{3/2}$	$7p_{1/2}$	1,17	1,14	1,12	-4,21062	-4,14875	-4,08934	1,50(11)	1,81(11)	2,17(11)
		1,17505039[a]	1,1488624[a]	1,12351787[a]				1,73(11)[a]	1,80(11)[a]	1,86(11)[a]
$3p_{3/2}$	$8p_{1/2}$	1,11	1,08	1,06	-3,17493	-3,13769	-3,10107	1,81(12)	2,07(12)	2,35(12)
		1,11282434[b]	1,08792262[b]	1,0638213[b]				1,10(11)[b]	1,14(11)[b]	1,18(11)[b]
$3p_{3/2}$	$9p_{1/2}$	1,07	1,05	1,02	-2,08126	-2,05155	-2,02219	2,41(13)	2,70(13)	3,02(13)
		1,07419454[b]	1,05010658[b]	1,02679204[b]				7,48(10)[b]	7,74(10)[b]	7,99(10)[b]
$3s_{1/2}$	$4d_{5/2}$	1,91	1,86	1,82	-2,02641	-2,01770	-2,00909	2,87(12)	3,08(12)	3,30(12)
		1,73599454[a]	1,68673926[a]	1,63903688[a]				3,35(12)[a]	3,61(12)[a]	3,89(12)[a]
$3s_{1/2}$	$5d_{5/2}$	1,37	1,33	1,30	-2,86396	-2,85685	-2,84996	8,15(11)	8,69(11)	9,25(11)
		1,2757653[a]	1,24172062[a]	1,20873249[a]				1,54(12)[a]	1,67(12)[a]	1,82(12)[a]
$3s_{1/2}$	$6d_{5/2}$	1,18	1,16	1,13	-3,89042	-3,90284	-3,91636	1,02(11)	1,04(11)	1,06(11)
		1,03604723[a]	1,08575405[a]	1,05755647[a]				4,60(11)[a]	8,67(11)[a]	9,46(11)[a]
$3s_{1/2}$	$7d_{5/2}$	1,09	1,07	1,04	-3,91536	-3,86090	-3,80829	1,13(11)	1,34(11)	1,58(11)
		1,03604723[a]	1,00930263[a]	0,98338544[a]				4,60(11)[a]	5,04(11)[a]	5,52(11)[a]
$3s_{1/2}$	$8d_{5/2}$	1,04	1,02	1,00	-2,60891	-2,57806	-2,54764	2,51(12)	2,82(12)	3,17(12)
		0,99062674[b]	0,96521892[b]	0,94059698[b]				2,90(11)[b]	3,19(11)[b]	3,50(11)[b]
$3s_{1/2}$	$9d_{5/2}$	1,01	0,99	0,97	-1,37301	-1,34776	-1,32290	4,60(13)	5,11(13)	5,66(13)
		0,96174496[b]	0,93717988[b]	0,91337458[b]				1,95(11)[b]	2,15(11)[b]	2,36(11)[b]
$3s_{1/2}$	$4d_{3/2}$	1,95	1,90	1,86	-2,20274	-2,19402	-2,18543	2,76(12)	2,95(12)	3,16(12)
		1,7710729[a]	1,72141826[a]	1,67331224[a]				3,38(12)[a]	3,65(12)[a]	3,93(12)[a]
$3s_{1/2}$	$5d_{3/2}$	1,38	1,34	1,31	-3,15563	-3,15184	-3,14835	6,16(11)	6,52(11)	6,88(11)
		1,28535475[a]	1,25123214[a]	1,21816481[a]				1,40(12)[a]	1,52(12)[a]	1,65(12)[a]
$3s_{1/2}$	$6d_{3/2}$	1,19	1,16	1,13	-4,59091	-4,64096	-4,69656	3,04(10)	2,84(10)	2,62(10)
		1,11906955[a]	1,08994154[a]	1,06171379[a]				6,79(11)[a]	7,42(11)[a]	8,10(11)[a]

Tablo 3.4. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			A_{ki} (s^{-1})		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$3s_{1/2}$	$7d_{3/2}$	1,10	1,07	1,05	-3,74495	-3,69817	-3,65267	2,49(11)	2,91(11)	3,39(11)
		1,03833308[a]	1,01157359[a]	0,98564122[a]				3,79(11)[a]	4,15(11)[a]	4,55(11)[a]
$3s_{1/2}$	$8d_{3/2}$	1,05	1,02	1,00	-2,69473	-2,66401	-2,63375	3,08(12)	3,47(12)	3,89(12)
		0,99202308[b]	0,96660654[b]	0,94197573[b]				2,33(11)[b]	2,56(11)[b]	2,81(11)[b]
$3s_{1/2}$	$9d_{3/2}$	1,01	0,99	0,97	-1,55243	-1,52738	-1,50272	4,56(13)	5,06(13)	5,61(13)
		0,96266728[b]	0,93809661[b]	0,9142856[b]				1,54(11)[b]	1,69(11)[b]	1,86(11)[b]
$4d_{3/2}$	$5g_{7/2}$	4,52	4,42	4,32	-1,79488	-1,78458	-1,77439	6,53(11)	7,01(11)	7,52(11)
		4,74860013[a]	4,39891643[a]	4,29667272[a]				6,03(10)[a]	7,03(11)[a]	7,55(11)[a]
$4d_{3/2}$	$6g_{7/2}$	3,00	2,93	2,87	-4,04473	-4,05034	-4,05641	8,34(9)	8,62(9)	8,90(9)
		3,10024878[a]	2,92577303[a]	2,85940889[a]				2,45(9)[a]	5,88(9)[a]	5,93(9)[a]
$4d_{3/2}$	$7g_{7/2}$	2,50	2,44	2,38	-3,12617	-3,11875	-3,11141	1,00(11)	1,07(11)	1,13(11)
		2,56288822[a]	2,43350612[a]	2,37874808[a]				1,26(10)[a]	8,53(10)[a]	9,00(10)[a]
$4d_{3/2}$	$8g_{7/2}$	2,25	2,20	2,15	-2,95579	-2,94376	-2,93181	1,82(11)	1,96(11)	2,11(11)
$4d_{3/2}$	$9g_{7/2}$	2,11	2,06	2,01	-2,44794	-2,42766	-2,40749	6,70(11)	7,35(11)	8,05(11)
$4d_{3/2}$	$4d_{5/2}$	95,28	91,22	87,37	-6,65746	-6,62068	-6,58434	2,69(4)	3,20(4)	3,79(4)
		87,64870372[a]	83,72741872[a]	80,01727281[a]				39778[a]	47709[a]	57120[a]
$4d_{3/2}$	$5d_{5/2}$	4,58	4,47	4,37	-3,23412	-3,22584	-3,21768	3,09(10)	3,30(10)	3,52(10)
		4,56175793[a]	4,45597469[a]	4,35358381[a]				3,19(10)[a]	3,41(10)[a]	3,65(10)[a]
$4d_{3/2}$	$6d_{5/2}$	3,02	2,95	2,88	-3,90062	-3,89473	-3,88903	1,54(10)	1,63(10)	1,73(10)
		3,00887414[a]	2,94028954[a]	2,87390275[a]				1,99(10)[a]	2,13(10)[a]	2,28(10)[a]
$4d_{3/2}$	$7d_{5/2}$	2,50	2,44	2,39	-4,61755	-4,62500	-4,63324	4,29(9)	4,41(9)	4,53(9)
		2,49639604[a]	2,43981724[a]	2,3850514[a]				1,27(10)[a]	1,36(10)[a]	1,45(10)[a]
$4d_{3/2}$	$8d_{5/2}$	2,25	2,20	2,15	-5,33540	-5,24495	-5,16056	1,01(9)	1,31(9)	1,66(9)
		2,24803744[b]	2,19723208[b]	2,1480547[b]				8,48(9)[b]	9,08(9)[b]	9,71(9)[b]

Tablo 3.4. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			A_{ki} (s^{-1})		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$4d_{3/2}$	$9d_{5/2}$	2,11	2,06	2,01	-3,16392	-3,13170	-3,09993	1,72(11)	1,93(11)	2,18(11)
		2,10461094[b]	2,05712776[b]	2,01116612[b]				5,94(9)[b]	6,35(9)[b]	6,80(9)[b]
$4d_{3/2}$	$4s_{1/2}$	55,89	54,21	52,61	-5,54879	-5,52898	-5,50981	1,51(6)	1,68(6)	1,86(6)
		23,03148606[a]	21,85289249[a]	20,74038267[a]				1,16(8)[a]	1,43(8)[a]	1,77(8)[a]
$4d_{3/2}$	$5s_{1/2}$	4,86	4,75	4,65	-3,25163	-3,24326	-3,23505	7,90(10)	8,43(10)	8,99(10)
		5,22443769[a]	5,12394752[a]	5,02704846[a]				9,17(10)[a]	9,81(10)[a]	1,05(11)[a]
$4d_{3/2}$	$6s_{1/2}$	3,08	3,01	2,94	-4,05591	-4,05594	-4,05634	3,10(10)	3,24(10)	3,39(10)
		3,16063286[a]	3,09294571[a]	3,02748598[a]				5,81(10)[a]	6,18(10)[a]	6,57(10)[a]
$4d_{3/2}$	$7s_{1/2}$	2,52	2,47	2,41	-5,85080	-6,00240	-6,19473	7,38(8)	5,45(8)	3,66(8)
		2,56018264[a]	2,50394109[a]	2,44952324[a]				3,82(10)[a]	4,06(10)[a]	4,31(10)[a]
$4d_{3/2}$	$8s_{1/2}$	2,26	2,21	2,16	-3,98998	-3,94579	-3,90266	6,66(10)	7,72(10)	8,92(10)
		2,28214516[b]	2,23150935[b]	2,18250683[b]				2,61(10)[b]	2,78(10)[b]	2,94(10)[b]
$4d_{3/2}$	$9s_{1/2}$	2,11	2,07	2,02	-2,58302	-2,55272	-2,52279	1,95(12)	2,19(12)	2,45(12)
		2,12539907[b]	2,07801512[b]	2,03215578[b]				1,86(10)[b]	1,97(10)[b]	2,09(10)[b]
$4d_{5/2}$	$5g_{9/2}$	4,71	4,61	4,51	-1,67593	-1,66610	-1,65638	6,33(11)	6,78(11)	7,25(11)
		4,7119977[a]	4,60628046[a]	4,50395646[a]				6,26(11)[a]	6,70(11)[a]	7,17(11)[a]
$4d_{5/2}$	$6g_{9/2}$	3,09	3,02	2,96	-3,55848	-3,55371	-3,54910	1,93(10)	2,04(10)	2,15(10)
		3,09114798[a]	3,02261734[a]	2,95628525[a]				1,75(10)[a]	1,84(10)[a]	1,94(10)[a]
$4d_{5/2}$	$7g_{9/2}$	2,56	2,50	2,45	-2,91767	-2,90914	-2,90073	1,23(11)	1,31(11)	1,40(11)
		2,55896087[a]	2,50242644[a]	2,44770559[a]				1,13(11)[a]	1,20(11)[a]	1,27(11)[a]
$4d_{5/2}$	$8g_{9/2}$	2,30	2,25	2,20	-2,85362	-2,84297	-2,83238	1,76(11)	1,89(11)	2,02(11)
$4d_{5/2}$	$9g_{9/2}$	2,15	2,11	2,06	-2,57837	-2,56139	-2,54451	3,80(11)	4,13(11)	4,49(11)
$4d_{5/2}$	$5g_{7/2}$	4,75	4,64	4,54	-2,78413	-2,77455	-2,76508	6,07(10)	6,49(10)	6,94(10)
		4,74860013[a]	4,64284472[a]	4,54048215[a]				6,03(10)[a]	6,44(10)[a]	6,89(10)[a]

Tablo 3.4. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			A_{ki} (s^{-1})		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$4d_{5/2}$	$6g_{7/2}$	3,10	3,03	2,97	-4,52552	-4,51735	-4,50929	2,59(9)	2,76(9)	2,93(9)
		3,10024878[a]	3,0317133[a]	2,9653763[a]				2,45(9)[a]	2,60(9)[a]	2,76(9)[a]
$4d_{5/2}$	$7g_{7/2}$	2,56	2,51	2,45	-3,97737	-3,96795	-3,95863	1,34(10)	1,43(10)	1,53(10)
		2,56288822[a]	2,50635231[a]	2,45162997[a]				1,26(10)[a]	1,35(10)[a]	1,44(10)[a]
$4d_{5/2}$	$8g_{7/2}$	2,30	2,25	2,20	-3,93208	-3,92098	-3,90993	1,84(10)	1,97(10)	2,11(10)
$4d_{5/2}$	$9g_{7/2}$	2,15	2,11	2,06	-3,67560	-3,65862	-3,64175	3,79(10)	4,12(10)	4,48(10)
$4d_{5/2}$	$5d_{3/2}$	4,93	4,82	4,72	-3,18446	-3,17510	-3,16585	4,49(10)	4,79(10)	5,11(10)
		4,95155753[a]	4,84608007[a]	4,74399993[a]				4,59(10)[a]	4,90(10)[a]	5,23(10)[a]
$4d_{5/2}$	$6d_{3/2}$	3,14	3,07	3,01	-3,90347	-3,89727	-3,89124	2,11(10)	2,24(10)	2,37(10)
		3,14900295[a]	3,08051984[a]	3,01423601[a]				2,50(10)[a]	2,66(10)[a]	2,83(10)[a]
$4d_{5/2}$	$7d_{3/2}$	2,58	2,52	2,47	-4,50340	-4,50487	-4,50672	7,87(9)	8,20(9)	8,53(9)
		2,58368948[a]	2,52717368[a]	2,47247173[a]				1,49(10)[a]	1,59(10)[a]	1,69(10)[a]
$4d_{5/2}$	$8d_{3/2}$	2,31	2,26	2,21	-6,13482	-6,26650	-6,42884	2,29(8)	1,77(8)	1,27(8)
		2,31480202[b]	2,26404545[b]	2,21491754[b]				9,65(9)[b]	1,03(10)[b]	1,09(10)[b]
$4d_{5/2}$	$9d_{3/2}$	2,16	2,11	2,06	-3,86572	-3,82981	-3,79456	4,88(10)	5,54(10)	6,28(10)
		2,16103227[b]	2,113591[b]	2,06767186[b]				6,61(9)[b]	7,02(9)[b]	7,45(9)[b]
$4d_{5/2}$	$4s_{1/2}$	35,23	34,00	32,84	-4,74996	-4,72353	-4,69761	1,59(7)	1,82(7)	2,07(7)
		18,23885469[a]	17,32980571[a]	16,47109444[a]				3,93(8)[a]	4,84(8)[a]	5,93(8)[a]
$4d_{5/2}$	$5s_{1/2}$	5,12	5,01	4,91	-3,01574	-3,00600	-2,99639	1,23(11)	1,31(11)	1,40(11)
		5,55558712[a]	5,45796379[a]	5,36404193[a]				1,29(11)[a]	1,37(11)[a]	1,46(11)[a]
$4d_{5/2}$	$6s_{1/2}$	3,18	3,11	3,04	-3,73110	-3,72578	-3,72067	6,13(10)	6,48(10)	6,85(10)
		3,27886968[a]	3,21158371[a]	3,14653647[a]				7,83(10)[a]	8,28(10)[a]	8,74(10)[a]
$4d_{5/2}$	$7s_{1/2}$	2,59	2,54	2,48	-4,49157	-4,50234	-4,51394	1,60(10)	1,63(10)	1,66(10)
		2,6372146[a]	2,58113209[a]	2,52687709[a]				5,11(10)[a]	5,39(10)[a]	5,68(10)[a]

Tablo 3.4. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			A_{ki} (s^{-1})		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$4d_{5/2}$	$8s_{1/2}$	2,32	2,27	2,22	-5,08464	-4,99878	-4,91816	5,11(9)	6,51(9)	8,19(9)
		2,34315484[b]	2,29261223[b]	2,24370488[b]				3,48(10)[b]	3,67(10)[b]	3,87(10)[b]
$4d_{5/2}$	$9s_{1/2}$	2,16	2,11	2,07	-3,06069	-3,02841	-2,99660	6,21(11)	6,99(11)	7,86(11)
		2,17821884[b]	2,13090157[b]	2,08511021[b]				2,47(10)[b]	2,61(10)[b]	2,74(10)[b]
$4f_{5/2}$	$4f_{7/2}$	183,20	175,19	167,61	-7,96009	-7,92154	-7,88339	2,72(2)	3,25(2)	3,88(2)
		184,89911407[a]	176,84723948[a]	169,22436224[a]				255,4[a]	304,8[a]	363,08[a]
$4f_{5/2}$	$5f_{7/2}$	4,75	4,64	4,54	-3,59661	-3,58769	-3,57889	9,37(9)	1,00(10)	1,07(10)
		4,74860013[a]	4,64284472[a]	4,54048215[a]				9,41(9)[a]	1,01(10)[a]	1,07(10)[a]
$4f_{5/2}$	$6f_{7/2}$	3,10	3,03	2,96	-4,30965	-4,30176	-4,29400	4,26(9)	4,53(9)	4,82(9)
		3,10024878[a]	3,0317133[a]	2,9653763[a]				4,72(9)[a]	5,05(9)[a]	5,39(9)[a]
$4f_{5/2}$	$7f_{7/2}$	2,56	2,51	2,45	-4,87684	-4,87382	-4,87109	1,69(9)	1,78(9)	1,87(9)
		2,56288822[a]	2,50635231[a]	2,45162997[a]				2,69(9)[a]	2,87(9)[a]	3,07(9)[a]
$4f_{5/2}$	$8f_{7/2}$	2,30	2,25	2,20	-6,18961	-6,25233	-6,32286	1,02(8)	9,20(7)	8,17(7)
		2,3035952[b]	2,25282851[b]	2,20369033[b]				1,69(9)[b]	1,80(9)[b]	1,92(9)[b]
$4f_{5/2}$	$9f_{7/2}$	2,15	2,11	2,06	-4,24579	-4,20974	-4,17420	1,02(10)	1,16(10)	1,32(10)
		2,15417005[b]	2,1067229[b]	2,06079778[b]				1,13(9)[b]	1,21(9)[b]	1,29(9)[b]
$4f_{5/2}$	$4p_{3/2}$	105,09	100,84	96,82	-7,04679	-7,01279	-6,97927	9,04(3)	1,06(4)	1,24(4)
		87,64870372[a]	83,72741872[a]	80,01727281[a]				22276[a]	26754[a]	32075[a]
$4f_{5/2}$	$5p_{3/2}$	4,91	4,81	4,70	-4,22185	-4,21215	-4,20257	4,14(9)	4,43(9)	4,73(9)
		4,95155753[a]	4,84608007[a]	4,74399993[a]				4,35(9)[a]	4,65(9)[a]	4,98(9)[a]
$4f_{5/2}$	$6p_{3/2}$	3,14	3,07	3,00	-4,89150	-4,88581	-4,88035	2,18(9)	2,30(9)	2,44(9)
		3,14900295[a]	3,08051984[a]	3,01423601[a]				2,87(9)[a]	3,07(9)[a]	3,28(9)[a]
$4f_{5/2}$	$7p_{3/2}$	2,58	2,52	2,47	-5,72484	-5,74116	-5,75904	4,73(8)	4,77(8)	4,78(8)
		2,58368948[a]	2,52717368[a]	2,47247173[a]				1,87(9)[a]	2,00(9)[a]	2,14(9)[a]

Tablo 3.4. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			A_{ki} (s^{-1})		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$4f_{5/2}$	$8p_{3/2}$	2,31	2,26	2,21	-5,52341	-5,46468	-5,40799	9,36(8)	1,12(9)	1,33(9)
		2,31480202[b]	2,26404545[b]	2,21491754[b]				1,27(9)[b]	1,35(9)[b]	1,45(9)[b]
$4f_{5/2}$	$9p_{3/2}$	2,16	2,11	2,06	-3,66678	-3,63544	-3,60444	7,72(10)	8,67(10)	9,73(10)
		2,16103227[b]	2,113591[b]	2,06767186[b]				8,92(8)[b]	9,54(8)[b]	1,02(9)[b]
$4f_{5/2}$	$4p_{1/2}$	30,92	29,78	28,70	-4,89241	-4,86291	-4,83392	1,49(7)	1,72(7)	1,98(7)
		18,23885469[a]	17,32980571[a]	16,47109444[a]				2,03(8)[a]	2,51(8)[a]	3,09(8)[a]
$4f_{5/2}$	$5p_{1/2}$	5,17	5,06	4,95	-3,58188	-3,57163	-3,56152	3,27(10)	3,50(10)	3,73(10)
		5,55558712[a]	5,45796379[a]	5,36404193[a]				3,62(10)[a]	3,87(10)[a]	4,13(10)[a]
$4f_{5/2}$	$6p_{1/2}$	3,19	3,12	3,05	-4,33928	-4,33480	-4,33059	1,50(10)	1,59(10)	1,67(10)
		3,27886968[a]	3,21158371[a]	3,14653647[a]				2,24(10)[a]	2,39(10)[a]	2,54(10)[a]
$4f_{5/2}$	$7p_{1/2}$	2,60	2,54	2,48	-5,35841	-5,38777	-5,41994	2,17(9)	2,12(9)	2,06(9)
		2,6372146[a]	2,58113209[a]	2,52687709[a]				1,45(10)[a]	1,54(10)[a]	1,63(10)[a]
$4f_{5/2}$	$8p_{1/2}$	2,32	2,27	2,22	-4,78869	-4,73564	-4,68420	1,01(10)	1,19(10)	1,40(10)
		2,34315484[b]	2,29261223[b]	2,24370488[b]				9,75(9)[b]	1,04(10)[b]	1,10(10)[b]
$4f_{5/2}$	$9p_{1/2}$	2,16	2,11	2,07	-3,13710	-3,10594	-3,07511	5,21(11)	5,85(11)	6,56(11)
		2,17821884[b]	2,13090157[b]	2,08511021[b]				6,85(9)[b]	7,29(9)[b]	7,73(9)[b]
$4f_{7/2}$	$5f_{5/2}$	4,94	4,83	4,73	-3,58051	-3,57123	-3,56206	1,20(10)	1,28(10)	1,36(10)
		4,94080423[a]	4,83512992[a]	4,73284951[a]				1,21(10)[a]	1,29(10)[a]	1,37(10)[a]
$4f_{7/2}$	$6f_{5/2}$	3,17	3,10	3,03	-4,33375	-4,32636	-4,31911	5,14(9)	5,46(9)	5,80(9)
		3,16924373[a]	3,10073247[a]	3,03442[a]				5,59(9)[a]	5,95(9)[a]	6,33(9)[a]
$4f_{7/2}$	$7f_{5/2}$	2,60	2,55	2,49	-4,86609	-4,86228	-4,85868	2,23(9)	2,35(9)	2,48(9)
		2,60579577[a]	2,54927332[a]	2,4945646[a]				3,06(9)[a]	3,26(9)[a]	3,47(9)[a]
$4f_{7/2}$	$8f_{5/2}$	2,34	2,28	2,24	-5,61311	-5,62759	-5,64341	4,97(8)	5,02(8)	5,06(8)
		2,3363672[b]	2,2856101[b]	2,23648164[b]				1,88(9)[b]	2,00(9)[b]	2,12(9)[b]

Tablo 3.4. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			A_{ki} (s^{-1})		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$4f_{7/2}$	$9f_{5/2}$	2,18	2,13	2,09	-5,00397	-4,96023	-4,91757	2,32(9)	2,68(9)	3,09(9)
		2,18183564[b]	2,13439627[b]	2,08847903[b]				1,24(9)[b]	1,32(9)[b]	1,40(9)[b]
$4f_{7/2}$	$4p_{3/2}$	66,78	64,00	61,37	-5,65686	-5,62078	-5,58513	4,12(5)	4,87(5)	5,75(5)
		59,46174069[a]	56,82426285[a]	54,32829052[a]				7,32(5)[a]	8,79(5)[a]	1,05(6)[a]
$4f_{7/2}$	$5p_{3/2}$	5,05	4,94	4,84	-3,40543	-3,39484	-3,38436	2,57(10)	2,75(10)	2,94(10)
		5,08780791[a]	4,98261689[a]	4,88082803[a]				2,67(10)[a]	2,85(10)[a]	3,05(10)[a]
$4f_{7/2}$	$6p_{3/2}$	3,19	3,12	3,06	-4,04538	-4,03735	-4,02948	1,48(10)	1,57(10)	1,67(10)
		3,20356259[a]	3,13513101[a]	3,06889946[a]				1,75(10)[a]	1,87(10)[a]	2,00(10)[a]
$4f_{7/2}$	$7p_{3/2}$	2,61	2,56	2,50	-4,62395	-4,62366	-4,62372	5,80(9)	6,07(9)	6,34(9)
		2,62030433[a]	2,56381092[a]	2,50913169[a]				1,14(10)[a]	1,22(10)[a]	1,31(10)[a]
$4f_{7/2}$	$8p_{3/2}$	2,34	2,29	2,24	-8,22160	-7,35856	-6,91891	1,83(6)	1,39(7)	4,01(7)
		2,34414906[b]	2,29340625[b]	2,24429229[b]				7,74(9)[b]	8,28(9)[b]	8,85(9)[b]
$4f_{7/2}$	$9p_{3/2}$	2,18	2,14	2,09	-3,51134	-3,47852	-3,44616	1,08(11)	1,21(11)	1,37(11)
		2,1865883[b]	2,13915715[b]	2,09324826[b]				5,46(9)[b]	5,84(9)[b]	6,24(9)[b]
$4p_{1/2}$	$5f_{5/2}$	4,16	4,06	3,96	-2,02475	-2,01513	-2,00563	6,06(11)	6,51(11)	6,98(11)
		3,80760103[a]	3,70125916[a]	3,59827508[a]				7,23(11)[a]	7,81(11)[a]	8,43(11)[a]
$4p_{1/2}$	$6f_{5/2}$	2,83	2,76	2,70	-2,99258	-2,98155	-2,97071	1,41(11)	1,52(11)	1,63(11)
		2,66120907[a]	2,59159277[a]	2,5241434[a]				2,69(11)[a]	2,95(11)[a]	3,23(11)[a]
$4p_{1/2}$	$7f_{5/2}$	2,37	2,32	2,26	-4,10275	-4,10010	-4,09795	1,56(10)	1,65(10)	1,73(10)
		2,25227108[a]	2,19477631[a]	2,13906812[a]				1,14(11)[a]	1,27(11)[a]	1,41(11)[a]
$4p_{1/2}$	$8f_{5/2}$	2,15	2,10	2,05	-3,90840	-3,87325	-3,83867	2,98(10)	3,39(10)	3,84(10)
		2,04812575[b]	1,9964918[b]	1,94646212[b]				5,61(10)[b]	6,29(10)[b]	7,05(10)[b]
$4p_{1/2}$	$9f_{5/2}$	2,01	1,97	1,92	-2,25849	-2,23371	-2,20928	1,51(12)	1,68(12)	1,86(12)
		1,92839475[b]	1,88014027[b]	1,83338529[b]				3,09(10)[b]	3,49(10)[b]	3,95(10)[b]

Tablo 3.4. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			A_{ki} (s^{-1})		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$4p_{1/2}$	$4p_{3/2}$	43,82	42,27	40,79	-5,15634	-5,12951	-5,10322	6,06(6)	6,93(6)	7,90(6)
		23,03148606[a]	21,85289249[a]	20,74038267[a]				1,28(8)[a]	1,58(8)[a]	1,94(8)[a]
$4p_{1/2}$	$5p_{3/2}$	4,24	4,14	4,04	-2,85456	-2,84766	-2,84088	1,30(11)	1,38(11)	1,47(11)
		3,89431363[a]	3,78706974[a]	3,68317338[a]				1,39(11)[a]	1,49(11)[a]	1,58(11)[a]
$4p_{1/2}$	$6p_{3/2}$	2,85	2,78	2,72	-3,60100	-3,60095	-3,60122	5,15(10)	5,40(10)	5,66(10)
		2,68536514[a]	2,61557858[a]	2,54795607[a]				1,05(11)[a]	1,13(11)[a]	1,20(11)[a]
$4p_{1/2}$	$7p_{3/2}$	2,38	2,32	2,27	-5,57294	-5,74831	-5,97625	7,88(8)	5,51(8)	3,42(8)
		2,26310179[a]	2,20554335[a]	2,14977027[a]				7,33(10)[a]	7,84(10)[a]	8,39(10)[a]
$4p_{1/2}$	$8p_{3/2}$	2,15	2,10	2,05	-3,45157	-3,41390	-3,37711	1,28(11)	1,46(11)	1,66(11)
		2,05410348[b]	2,00243778[b]	1,95237572[b]				5,16(10)[b]	5,53(10)[b]	5,92(10)[b]
$4p_{1/2}$	$9p_{3/2}$	2,02	1,97	1,93	-2,05114	-2,02547	-2,00020	3,64(12)	4,05(12)	4,50(12)
		1,93210647[b]	1,88383347[b]	1,83705959[b]				3,73(10)[b]	4,00(10)[b]	4,28(10)[b]
$4p_{3/2}$	$5f_{7/2}$	4,54	4,44	4,34	-1,80498	-1,79533	-1,78578	6,33(11)	6,79(11)	7,27(11)
		4,50455401[a]	4,39891643[a]	4,29667272[a]				6,41(11)[a]	6,87(11)[a]	7,36(11)[a]
$4p_{3/2}$	$6f_{7/2}$	3,01	2,94	2,88	-2,89000	-2,87881	-2,86775	1,19(11)	1,27(11)	1,37(11)
		2,99433524[a]	2,92577303[a]	2,85940889[a]				1,37(11)[a]	1,48(11)[a]	1,60(11)[a]
$4p_{3/2}$	$7f_{7/2}$	2,50	2,44	2,39	-3,94421	-3,93639	-3,92881	1,52(10)	1,62(10)	1,72(10)
		2,49007722[a]	2,43350612[a]	2,37874808[a]				3,41(10)[a]	3,71(10)[a]	4,03(10)[a]
$4p_{3/2}$	$8f_{7/2}$	2,25	2,20	2,15	-4,56517	-4,52081	-4,47741	4,47(9)	5,18(9)	5,99(9)
		2,24460225[b]	2,19380057[b]	2,14462691[b]				9,27(9)[b]	1,02(10)[b]	1,12(10)[b]
$4p_{3/2}$	$9f_{7/2}$	2,11	2,06	2,02	-2,66689	-2,63883	-2,61110	4,03(11)	4,50(11)	5,02(11)
		2,10249633[b]	2,05501525[b]	2,00905573[b]				2,54(9)[b]	2,85(9)[b]	3,19(9)[b]
$4p_{3/2}$	$5f_{5/2}$	4,60	4,49	4,39	-2,58880	-2,57925	-2,56980	1,36(11)	1,45(11)	1,55(11)
		4,56175793[a]	4,45597469[a]	4,35358381[a]				1,38(11)[a]	1,48(11)[a]	1,58(11)[a]

Tablo 3.4. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			A_{ki} (s^{-1})		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$4p_{3/2}$	$6f_{5/2}$	3,02	2,96	2,89	-3,74625	-3,73671	-3,72730	2,18(10)	2,33(10)	2,49(10)
		3,00887414[a]	2,94028954[a]	2,87390275[a]				2,57(10)[a]	2,77(10)[a]	2,97(10)[a]
$4p_{3/2}$	$7f_{5/2}$	2,51	2,45	2,40	-4,97006	-4,96947	-4,96936	1,90(9)	1,99(9)	2,08(9)
		2,49639604[a]	2,43981724[a]	2,3850514[a]				5,32(9)[a]	5,76(9)[a]	6,23(9)[a]
$4p_{3/2}$	$8f_{5/2}$	2,26	2,21	2,16	-5,03470	-4,99457	-4,95517	2,02(9)	2,31(9)	2,65(9)
		2,24803744[b]	2,19723208[b]	2,1480547[b]				1,07(9)[b]	1,17(9)[b]	1,28(9)[b]
$4p_{3/2}$	$9f_{5/2}$	2,11	2,06	2,02	-3,42708	-3,39919	-3,37162	9,32(10)	1,04(11)	1,16(11)
		2,10461094[b]	2,05712776[b]	2,01116612[b]				1,62(8)[b]	1,82(8)[b]	2,04(8)[b]
$4p_{3/2}$	$5p_{1/2}$	4,92	4,82	4,71	-2,71583	-2,70670	-2,69769	2,65(11)	2,82(11)	3,01(11)
		5,22443769[a]	5,12394752[a]	5,02704846[a]				2,64(11)[a]	2,81(11)[a]	2,99(11)[a]
$4p_{3/2}$	$6p_{1/2}$	3,09	3,02	2,96	-3,51327	-3,50961	-3,50616	1,07(11)	1,13(11)	1,19(11)
		3,16063286[a]	3,09294571[a]	3,02748598[a]				1,28(11)[a]	1,34(11)[a]	1,41(11)[a]
$4p_{3/2}$	$7p_{1/2}$	2,53	2,48	2,42	-4,43643	-4,45689	-4,47887	1,90(10)	1,90(10)	1,89(10)
		2,56018264[a]	2,50394109[a]	2,44952324[a]				7,33(10)[a]	7,66(10)[a]	7,99(10)[a]
$4p_{3/2}$	$8p_{1/2}$	2,27	2,22	2,17	-4,46875	-4,40475	-4,34364	2,20(10)	2,67(10)	3,21(10)
		2,28214516[b]	2,23150935[b]	2,18250683[b]				4,64(10)[b]	4,83(10)[b]	5,02(10)[b]
$4p_{3/2}$	$9p_{1/2}$	2,12	2,07	2,02	-2,78312	-2,75241	-2,72215	1,22(12)	1,38(12)	1,54(12)
		2,12539907[b]	2,07801512[b]	2,03215578[b]				3,13(10)[b]	3,26(10)[b]	3,38(10)[b]
$4s_{1/2}$	$5d_{5/2}$	4,23	4,13	4,04	-2,21573	-2,20701	-2,19840	3,78(11)	4,04(11)	4,32(11)
		3,80760103[a]	3,70125916[a]	3,59827508[a]				4,23(11)[a]	4,53(11)[a]	4,85(11)[a]
$4s_{1/2}$	$6d_{5/2}$	2,86	2,80	2,73	-2,92038	-2,91254	-2,90486	1,63(11)	1,74(11)	1,85(11)
		2,66120907[a]	2,59159277[a]	2,5241434[a]				2,69(11)[a]	2,91(11)[a]	3,14(11)[a]
$4s_{1/2}$	$7d_{5/2}$	2,39	2,34	2,29	-3,69569	-3,69727	-3,69926	3,91(10)	4,08(10)	4,25(10)
		2,25227108[a]	2,19477631[a]	2,13906812[a]				1,68(11)[a]	1,82(11)[a]	1,97(11)[a]

Tablo 3.4. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			A_{ki} (s^{-1})		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$4s_{1/2}$	$8d_{5/2}$	2,16	2,12	2,07	-4,25040	-4,19198	-4,13603	1,33(10)	1,60(10)	1,90(10)
		2,04812575[b]	1,9964918[b]	1,94646212[b]				1,10(11)[b]	1,19(11)[b]	1,30(11)[b]
$4s_{1/2}$	$9d_{5/2}$	2,03	1,99	1,94	-2,21650	-2,19146	-2,16685	1,64(12)	1,82(12)	2,01(12)
		1,92839475[b]	1,88014027[b]	1,83338529[b]				7,54(10)[b]	8,22(10)[b]	8,95(10)[b]
$4s_{1/2}$	$5d_{3/2}$	4,32	4,22	4,13	-2,38061	-2,37161	-2,36271	3,72(11)	3,98(11)	4,25(11)
		3,89431363[a]	3,78706974[a]	3,68317338[a]				4,36(11)[a]	4,69(11)[a]	5,04(11)[a]
$4s_{1/2}$	$6d_{3/2}$	2,88	2,82	2,75	-3,15992	-3,15349	-3,14724	1,39(11)	1,48(11)	1,57(11)
		2,68536514[a]	2,61557858[a]	2,54795607[a]				2,55(11)[a]	2,77(11)[a]	2,99(11)[a]
$4s_{1/2}$	$7d_{3/2}$	2,40	2,35	2,29	-4,07462	-4,08384	-4,09378	2,43(10)	2,49(10)	2,55(10)
		2,26310179[a]	2,20554335[a]	2,14977027[a]				1,52(11)[a]	1,66(11)[a]	1,80(11)[a]
$4s_{1/2}$	$8d_{3/2}$	2,17	2,12	2,07	-4,12892	-4,07979	-4,03234	2,63(10)	3,09(10)	3,61(10)
		2,05410348[b]	2,00243778[b]	1,95237572[b]				9,70(10)[b]	1,06(11)[b]	1,15(11)[b]
$4s_{1/2}$	$9d_{3/2}$	2,03	1,99	1,94	-2,38749	-2,36272	-2,33837	1,65(12)	1,83(12)	2,03(12)
		1,93210647[b]	1,88383347[b]	1,83705959[b]				6,54(10)[b]	7,14(10)[b]	7,78(10)[b]
$5d_{3/2}$	$5g_{7/2}$	132,51	127,05	121,87	-5,92092	-5,88523	-5,84998	5,70(4)	6,73(4)	7,93(4)
		115,85173234[a]	110,70710863[a]	105,83864829[a]				1,12(5)[a]	1,34(5)[a]	1,61(5)[a]
$5d_{3/2}$	$6g_{7/2}$	8,36	8,17	7,99	-1,86110	-1,85118	-1,84137	1,64(11)	1,76(11)	1,88(11)
		8,29200435[a]	8,09754986[a]	7,90934333[a]				1,67(11)[a]	1,79(11)[a]	1,92(11)[a]
$5d_{3/2}$	$7g_{7/2}$	5,34	5,22	5,10	-3,32378	-3,30979	-3,29591	1,39(10)	1,50(10)	1,62(10)
		5,31270211[a]	5,19119541[a]	5,07358437[a]				1,68(10)[a]	1,83(10)[a]	1,99(10)[a]
$5d_{3/2}$	$8g_{7/2}$	4,33	4,23	4,13	-5,27183	-5,26960	-5,26722	2,38(8)	2,51(8)	2,64(8)
$5d_{3/2}$	$9g_{7/2}$	3,83	3,74	3,66	-3,21482	-3,19367	-3,17268	3,47(10)	3,81(10)	4,19(10)
$5d_{3/2}$	$5d_{5/2}$	201,34	193,10	185,30	-6,76760	-6,73298	-6,69882	4,68(3)	5,51(3)	6,48(3)
		171,00159877[a]	163,34730709[a]	156,10525339[a]				10320[aa]	12386[a]	14839[a]

Tablo 3.4. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			A_{ki} (s^{-1})		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$5d_{3/2}$	$6d_{5/2}$	8,46	8,27	8,08	-3,26873	-3,26024	-3,25187	8,36(9)	8,93(9)	9,52(9)
		8,40446391[a]	8,20972947[a]	8,02124013[a]				8,63(9)[a]	9,22(9)[a]	9,85(9)[a]
$5d_{3/2}$	$7d_{5/2}$	5,37	5,24	5,13	-3,90587	-3,89945	-3,89320	4,80(9)	5,09(9)	5,41(9)
		5,34154853[a]	5,21999952[a]	5,10234565[a]				6,20(9)[a]	6,63(9)[a]	7,09(9)[a]
$5d_{3/2}$	$8d_{5/2}$	4,34	4,24	4,14	-4,72151	-4,73186	-4,74303	1,12(9)	1,15(9)	1,17(9)
		4,32027754[b]	4,22257725[b]					4,33(9)[b]	4,63(9)[b]	
$5d_{3/2}$	$9d_{5/2}$	3,83	3,75	3,66	-3,95847	-3,92018	-3,88270	8,33(9)	9,52(9)	1,09(10)
		3,81998161[b]	3,73386767[b]					3,09(9)[b]	3,31(9)[b]	
$5d_{3/2}$	$5s_{1/2}$	128,27	124,78	121,47	-5,78532	-5,76920	-5,75373	1,66(5)	1,82(5)	1,99(5)
		45,54215484[a]	43,22672499[a]	41,04079159[a]				2,70(7)[a]	3,34(7)[a]	4,12(7)[a]
$5d_{3/2}$	$6s_{1/2}$	8,96	8,76	8,57	-3,20079	-3,19208	-3,18352	2,61(10)	2,79(10)	2,98(10)
		9,70624124[a]	9,52194954[a]	9,34429432[a]				2,91(10)[a]	3,11(10)[a]	3,32(10)[a]
$5d_{3/2}$	$7s_{1/2}$	5,47	5,35	5,23	-3,95271	-3,94991	-3,94735	1,24(10)	1,31(10)	1,37(10)
		5,64234436[a]	5,52258721[a]	5,40678419[a]				2,01(10)[a]	2,14(10)[a]	2,27(10)[a]
$5d_{3/2}$	$8s_{1/2}$	4,38	4,28	4,18	-5,98806	-6,16289	-6,39068	1,79(8)	1,25(8)	7,75(7)
		4,44803481[b]	4,35101716[b]					1,42(10)[b]	1,51(10)[b]	
$5d_{3/2}$	$9s_{1/2}$	3,85	3,77	3,68	-3,25501	-3,22261	-3,19072	1,25(11)	1,41(11)	1,59(11)
		3,88902225[b]	3,80325626[b]					1,03(10)[b]	1,09(10)[b]	
$5d_{5/2}$	$5g_{9/2}$	236,37	226,33	216,82	-6,53191	-6,49450	-6,45751	3,51(3)	4,17(3)	4,95(3)
		226,26184869[a]	216,42081551[a]	207,1038484[a]				4366,8[a]	5219,1[a]	6226,3[a]
$5d_{5/2}$	$6g_{9/2}$	8,66	8,46	8,27	-1,73124	-1,72152	-1,71191	1,65(11)	1,77(11)	1,89(11)
		8,64305319[a]	8,44845578[a]	8,26010519[a]				1,65(11)[a]	1,76(11)[a]	1,89(11)[a]
$5d_{5/2}$	$7g_{9/2}$	5,47	5,35	5,23	-3,32362	-3,31123	-3,29894	1,06(10)	1,14(10)	1,22(10)
		5,46510596[a]	5,34365375[a]	5,22609801[a]				1,14(10)[a]	1,23(10)[a]	1,33(10)[a]

Tablo 3.4. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			A_{ki} (s^{-1})		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$5d_{5/2}$	$8g_{9/2}$	4,41	4,32	4,22	-4,76506	-4,75814	-4,75126	5,88(8)	6,25(8)	6,63(8)
$5d_{5/2}$	$9g_{9/2}$	3,90	3,81	3,73	-3,33346	-3,31473	-3,29608	2,04(10)	2,22(10)	2,43(10)
$5d_{5/2}$	$5g_{7/2}$	387,62	371,39	356,02	-8,28670	-8,25039	-8,21452	2,87(1)	3,40(1)	4,01(1)
		359,21812205[a]	343,53419253[a]	328,68678874[a]				42028[a]	50,243[a]	59,952[a]
$5d_{5/2}$	$6g_{7/2}$	8,73	8,53	8,35	-2,83419	-2,82460	-2,81511	1,60(10)	1,71(10)	1,83(10)
		8,71458137[a]	8,51990359[a]	8,33147179[a]				1,60(10)[a]	1,71(10)[a]	1,83(10)[a]
$5d_{5/2}$	$7g_{7/2}$	5,49	5,37	5,25	-4,51512	-4,50457	-4,49413	8,46(8)	9,06(8)	9,70(8)
		5,4830503[a]	5,36158724[a]	5,24402053[a]				9,10(8)[a]	9,77(8)[a]	1,05(9)[a]
$5d_{5/2}$	$8g_{7/2}$	4,42	4,32	4,23	-5,57506	-5,56199	-5,54894	1,13(8)	1,22(8)	1,32(8)
$5d_{5/2}$	$9g_{7/2}$	3,90	3,82	3,73	-4,39491	-4,37587	-4,35691	2,21(9)	2,41(9)	2,63(9)
$5d_{5/2}$	$6d_{3/2}$	9,05	8,85	8,66	-3,21810	-3,20861	-3,19922	1,23(10)	1,32(10)	1,40(10)
		9,1110961[a]	8,91692673[a]	8,72901162[a]				1,26(10)[a]	1,34(10)[a]	1,43(10)[a]
$5d_{5/2}$	$7d_{3/2}$	5,56	5,44	5,32	-3,90056	-3,89373	-3,88705	6,78(9)	7,20(9)	7,64(9)
		5,57914729[a]	5,45777978[a]	5,34031006[a]				7,97(9)[a]	8,49(9)[a]	9,04(9)[a]
$5d_{5/2}$	$8d_{3/2}$	4,45	4,35	4,26	-4,54598	-4,54821	-4,55083	2,40(9)	2,49(9)	2,59(9)
		4,46034642[b]	4,36275482[b]	4,26829552[b]				5,25(9)[b]	5,59(9)[b]	5,95(9)[b]
$5d_{5/2}$	$9d_{3/2}$	3,92	3,83	3,75	-4,84504	-4,78839	-4,73382	1,55(9)	1,85(9)	2,19(9)
		3,92253367[b]	3,8365012[b]	3,75322939[b]				3,63(9)[b]	3,87(9)[b]	4,11(9)[b]
$5d_{5/2}$	$5s_{1/2}$	78,35	75,80	73,37	-4,95170	-4,92813	-4,90509	2,02(6)	2,28(6)	2,57(6)
		35,96400801[a]	34,18130077[a]	32,49714277[a]				9,15(7)[a]	1,12(8)[a]	1,38(8)[a]
$5d_{5/2}$	$6s_{1/2}$	9,38	9,18	8,99	-2,97684	-2,96716	-2,95761	4,00(10)	4,27(10)	4,55(10)
		10,29033195[a]	10,11136811[a]	9,93924707[a]				4,07(10)[a]	4,32(10)[a]	4,59(10)[a]
$5d_{5/2}$	$7s_{1/2}$	5,63	5,50	5,39	-3,66899	-3,66295	-3,65707	2,26(10)	2,39(10)	2,53(10)
		5,83487093[a]	5,71583304[a]	5,60076967[a]				2,69(10)[a]	2,84(10)[a]	2,99(10)[a]

Tablo 3.4. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			A_{ki} (s^{-1})		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$5d_{5/2}$	$8s_{1/2}$	4,48	4,38	4,28	-4,53141	-4,54478	-4,55915	4,90(9)	4,97(9)	5,02(9)
		4,56682551[b]	4,47008504[b]	4,37650367[b]				1,88(10)[b]	1,98(10)[b]	2,08(10)[b]
$5d_{5/2}$	$9s_{1/2}$	3,93	3,84	3,76	-3,77796	-3,73855	-3,69994	3,61(10)	4,13(10)	4,72(10)
		3,97952707[b]	3,89391936[b]	3,81108542[b]				1,35(10)[b]	1,42(10)[b]	1,49(10)[b]
$5f_{5/2}$	$5f_{7/2}$	367,74	351,90	336,90	-7,87414	-7,83636	-7,79900	8,24(1)	9,81(1)	1,17(2)
		359,21812205[a]	343,53419253[a]	328,68678874[a]				91610[a]	109,44[a]	130,49[a]
$5f_{5/2}$	$6f_{7/2}$	8,72	8,52	8,33	-3,52647	-3,51750	-3,50864	3,26(9)	3,49(9)	3,72(9)
		8,71458137[a]	8,51990359[a]	8,33147179[a]				3,30(9)[a]	3,52(9)[a]	3,76(9)[a]
$5f_{5/2}$	$7f_{7/2}$	5,48	5,36	5,24	-4,18115	-4,17320	-4,16538	1,83(9)	1,95(9)	2,07(9)
		5,4830503[a]	5,36158724[a]	5,24402053[a]				2,06(9)[a]	2,21(9)[a]	2,36(9)[a]
$5f_{5/2}$	$8f_{7/2}$	4,42	4,32	4,23	-4,78846	-4,78737	-4,78659	6,95(8)	7,29(8)	7,63(8)
		4,41892283[b]	4,32129418[b]	4,22679728[b]				1,33(9)[b]	1,43(9)[b]	1,52(9)[b]
$5f_{5/2}$	$9f_{7/2}$	3,90	3,81	3,73	-5,10217	-5,04597	-4,99177	4,33(8)	5,16(8)	6,11(8)
		3,89998335[b]	3,81393198[b]	3,73064098[b]				9,09(8)[b]	9,72(8)[b]	1,04(9)[b]
$5f_{5/2}$	$5p_{3/2}$	226,18	217,53	209,32	-7,04991	-7,01869	-6,98798	1,94(3)	2,25(3)	2,61(3)
		171,00159877[a]	163,34730709[a]	156,10525339[a]				7773,4[a]	9339,2[a]	11201[a]
$5f_{5/2}$	$6p_{3/2}$	9,02	8,82	8,63	-3,97274	-3,96317	-3,95372	2,18(9)	2,33(9)	2,49(9)
		9,1110961[a]	8,91692673[a]	8,72901162[a]				2,31(9)[a]	2,47(9)[a]	2,64(9)[a]
$5f_{5/2}$	$7p_{3/2}$	5,55	5,43	5,31	-4,63628	-4,63054	-4,62500	1,25(9)	1,32(9)	1,40(9)
		5,57914729[a]	5,45777978[a]	5,34031006[a]				1,71(9)[a]	1,83(9)[a]	1,95(9)[a]
$5f_{5/2}$	$8p_{3/2}$	4,45	4,35	4,25	-5,74403	-5,77574	-5,81039	1,52(8)	1,48(8)	1,43(8)
		4,46034642[b]	4,36275482[b]	4,26829552[b]				1,21(9)[b]	1,29(9)[b]	1,38(9)[b]
$5f_{5/2}$	$9p_{3/2}$	3,91	3,83	3,74	-4,15314	-4,11826	-4,08392	7,66(9)	8,67(9)	9,81(9)
		3,92253367[b]	3,8365012[b]	3,75322939[b]				8,69(8)[b]	9,29(8)[b]	9,93(8)[b]

Tablo 3.4. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			A_{ki} (s^{-1})		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$5f_{5/2}$	$5p_{1/2}$	69,36	66,97	64,70	-4,95511	-4,92891	-4,90323	2,56(6)	2,92(6)	3,32(6)
		35,96400801[a]	34,18130077[a]	32,49714277[a]				6,63(7)[a]	8,15(7)[a]	1,00(8)[a]
$5f_{5/2}$	$6p_{1/2}$	9,45	9,25	9,05	-3,34851	-3,33850	-3,32864	1,67(10)	1,79(10)	1,91(10)
		10,29033195[a]	10,11136811[a]	9,93924707[a]				1,80(10)[a]	1,92(10)[a]	2,05(10)[a]
$5f_{5/2}$	$7p_{1/2}$	5,64	5,52	5,40	-4,07994	-4,07475	-4,06977	8,72(9)	9,23(9)	9,75(9)
		5,83487093[a]	5,71583304[a]	5,60076967[a]				1,23(10)[a]	1,31(10)[a]	1,39(10)[a]
$5f_{5/2}$	$8p_{1/2}$	4,48	4,38	4,28	-5,34337	-5,38701	-5,43512	7,54(8)	7,13(8)	6,67(8)
		4,56682551[b]	4,47008504[b]	4,37650367[b]				8,62(9)[b]	9,14(9)[b]	9,69(9)[b]
$5f_{5/2}$	$9p_{1/2}$	3,93	3,84	3,76	-3,62706	-3,59238	-3,55823	5,10(10)	5,78(10)	6,53(10)
		3,97952707[b]	3,89391936[b]	3,81108542[b]				6,17(9)[b]	6,55(9)[b]	6,93(9)[b]
$5f_{7/2}$	$6f_{5/2}$	9,05	8,86	8,67	-3,50492	-3,49548	-3,48615	4,24(9)	4,53(9)	4,83(9)
		9,06185627[a]	8,86730393[a]	8,67899926[a]				4,28(9)[a]	4,57(9)[a]	4,88(9)[a]
$5f_{7/2}$	$7f_{5/2}$	5,59	5,47	5,36	-4,19323	-4,18548	-4,17786	2,28(9)	2,42(9)	2,57(9)
		5,59973415[a]	5,4783097[a]	5,36078209[a]				2,50(9)[a]	2,66(9)[a]	2,84(9)[a]
$5f_{7/2}$	$8f_{5/2}$	4,48	4,39	4,29	-4,73907	-4,73601	-4,73317	1,01(9)	1,06(9)	1,12(9)
		4,48762762[b]	4,3900209[b]	4,29554621[b]				1,56(9)[b]	1,66(9)[b]	1,77(9)[b]
$5f_{7/2}$	$9f_{5/2}$	3,95	3,86	3,78	-6,91732	-6,69497	-6,51315	8,63(6)	1,51(7)	2,39(7)
		3,95023272[b]	3,86419716[b]	3,78092218[b]				1,04(9)[b]	1,11(9)[b]	1,18(9)[b]
$5f_{7/2}$	$5p_{3/2}$	140,04	134,43	129,11	-5,63211	-5,59809	-5,56454	9,92(4)	1,16(5)	1,36(5)
		115,85173234[a]	110,70710863[a]	105,83864829[a]				2,54(5)[a]	3,05(5)[a]	3,66(5)[a]
$5f_{7/2}$	$6p_{3/2}$	9,25	9,05	8,86	-3,16040	-3,15008	-3,13988	1,35(10)	1,44(10)	1,54(10)
		9,34820095[a]	9,15454622[a]	8,96715443[a]				1,41(10)[a]	1,50(10)[a]	1,61(10)[a]
$5f_{7/2}$	$7p_{3/2}$	5,64	5,52	5,40	-3,79288	-3,78515	-3,77758	8,45(9)	8,99(9)	9,55(9)
		5,6671661[a]	5,54588814[a]	5,42850929[a]				1,03(10)[a]	1,11(10)[a]	1,18(10)[a]

Tablo 3.4. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			A_{ki} (s^{-1})		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$5f_{7/2}$	$8p_{3/2}$	4,50	4,40	4,31	-4,49353	-4,49788	-4,50280	2,64(9)	2,73(9)	2,82(9)
		4,51642606[b]	4,41887284[b]	4,32445245[b]				7,31(9)[b]	7,82(9)[b]	8,35(9)[b]
$5f_{7/2}$	$9p_{3/2}$	3,95	3,87	3,79	-4,04717	-4,00544	-3,96462	9,56(9)	1,10(10)	1,26(10)
		3,96583922[b]	3,87983015[b]	3,79658204[b]				5,26(9)[b]	5,62(9)[b]	6,01(9)[b]
$5g_{7/2}$	$5g_{9/2}$	605,73	579,44	554,56	-8,90597	-8,86759	-8,82960	2,2574	2,69483	3,21103
		611,3089238[a]	584,89477544[a]	559,88363726[a]				2,1313[aa]	2,5411[a]	3,024[a]
$5g_{7/2}$	$6g_{9/2}$	8,85	8,66	8,47	-3,86469	-3,85551	-3,84644	1,16(9)	1,24(9)	1,32(9)
		8,85613842[a]	8,66146516[a]	8,47303795[a]				1,16(9)[a]	1,24(9)[a]	1,32(9)[a]
$5g_{7/2}$	$7g_{9/2}$	5,55	5,43	5,31	-4,59984	-4,59121	-4,58269	5,44(8)	5,81(8)	6,19(8)
		5,54953601[a]	5,42808732[a]	8,47303795[a]				5,77(8)[a]	6,17(8)[a]	1,32(9)[a]
$5g_{7/2}$	$8g_{9/2}$	4,46	4,37	4,27	-5,16075	-5,15565	-5,15077	2,31(8)	2,44(8)	2,58(8)
$5g_{7/2}$	$9g_{9/2}$	3,94	3,85	3,77	-7,06284	-6,89827	-6,75602	3,72(6)	5,68(6)	8,24(6)
$5g_{7/2}$	$6d_{5/2}$	9,04	8,85	8,66	-4,76026	-4,75028	-4,74040	2,36(8)	2,52(8)	2,70(8)
		9,06185627[a]	8,86730393[a]	8,67899926[a]				2,37(8)[a]	2,53(8)[a]	2,71(8)[a]
$5g_{7/2}$	$7d_{5/2}$	5,59	5,47	5,35	-5,38803	-5,37981	-5,37172	1,45(8)	1,55(8)	1,65(8)
		5,59973415[a]	5,4783097[a]	5,36078209[a]				1,61(8)[a]	1,73(8)[a]	1,84(8)[a]
$5g_{7/2}$	$8d_{5/2}$	4,48	4,39	4,29	-6,20161	-6,21004	-6,21943	3,48(7)	3,56(7)	3,64(7)
$5g_{7/2}$	$9d_{5/2}$	3,95	3,86	3,78	-5,01679	-4,98145	-4,94667	6,87(8)	7,79(8)	8,81(8)
$5g_{7/2}$	$6d_{3/2}$	9,26	9,07	8,88	-3,74869	-3,73788	-3,72719	3,47(9)	3,71(9)	3,96(9)
		9,34820095[a]	9,15454622[a]	8,96715443[a]				3,58(9)[a]	3,83(9)[a]	4,10(9)[a]
$5g_{7/2}$	$7d_{3/2}$	5,64	5,52	5,40	-4,41087	-4,40272	-4,39472	2,03(9)	2,17(9)	2,30(9)
		5,6671661[a]	5,54588814[a]	5,42850929[a]				2,42(9)[a]	2,59(9)[a]	2,77(9)[a]
$5g_{7/2}$	$8d_{3/2}$	4,50	4,40	4,31	-5,28489	-5,29649	-5,30927	4,27(8)	4,34(8)	4,41(8)

Tablo 3.4. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			A_{ki} (s^{-1})		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$5g_{7/2}$	$9d_{3/2}$	3,96	3,87	3,79	-4,07356	-4,03829	-4,00358	9,00(9)	1,02(10)	1,15(10)
$5g_{9/2}$	$6g_{7/2}$	9,06	8,87	8,68	-3,85684	-3,84749	-3,83824	1,41(9)	1,51(9)	1,61(9)
		9,06367299[a]	8,86905433[a]	8,6806824[a]				1,42(9)[a]	1,51(9)[a]	1,61(9)[a]
$5g_{9/2}$	$7g_{7/2}$	5,62	5,50	5,38	-4,61867	-4,61046	-4,60237	6,36(8)	6,77(8)	7,20(8)
		5,61922208[a]	5,49778891[a]	5,38025245[a]				6,69(8)[a]	7,13(8)[a]	7,60(8)[a]
$5g_{9/2}$	$8g_{7/2}$	4,51	4,41	4,31	-5,15265	-5,14713	-5,14179	2,89(8)	3,06(8)	3,23(8)
$5g_{9/2}$	$9g_{7/2}$	3,97	3,88	3,80	-6,53817	-6,59106	-6,64946	1,53(7)	1,42(7)	1,30(7)
$5g_{9/2}$	$6d_{5/2}$	9,18	8,98	8,80	-3,64078	-3,63030	-3,61992	3,02(9)	3,23(9)	3,45(9)
		9,19820768[a]	9,00380623[a]	8,81565455[a]				3,04(9)[a]	3,25(9)[a]	3,47(9)[a]
$5g_{9/2}$	$7d_{5/2}$	5,64	5,52	5,41	-4,26079	-4,25165	-4,24261	1,91(9)	2,04(9)	2,18(9)
		5,65150326[a]	5,53010643[a]	5,4126068[a]				2,07(9)[a]	2,21(9)[a]	2,36(9)[a]
$5g_{9/2}$	$8d_{5/2}$	4,52	4,42	4,32	-4,87127	-4,86956	-4,86824	7,33(8)	7,69(8)	8,05(8)
$5g_{9/2}$	$9d_{5/2}$	3,97	3,89	3,80	-4,57100	-4,52930	-4,48856	1,89(9)	2,18(9)	2,50(9)
$5p_{1/2}$	$6f_{5/2}$	7,84	7,65	7,47	-2,18373	-2,17444	-2,16526	1,19(11)	1,27(11)	1,36(11)
		7,09511375[a]	6,89938142[a]	6,7098331[a]				1,38(11)[a]	1,48(11)[a]	1,59(11)[a]
$5p_{1/2}$	$7f_{5/2}$	5,11	4,99	4,87	-2,98000	-2,97029	-2,96075	4,47(10)	4,79(10)	5,12(10)
		4,78081614[a]	4,65755912[a]	4,53814623[a]				7,81(10)[a]	8,50(10)[a]	9,24(10)[a]
$5p_{1/2}$	$8f_{5/2}$	4,16	4,07	3,98	-3,92883	-3,92791	-3,92733	7,55(9)	7,93(9)	8,31(9)
		3,94595167[b]	3,84680442[b]	3,75074625[b]				4,43(10)[b]	4,86(10)[b]	5,33(10)[b]
$5p_{1/2}$	$9f_{5/2}$	3,70	3,61	3,53	-3,18492	-3,15689	-3,12938	5,31(10)	5,93(10)	6,62(10)
		3,52436516[b]	3,43698539[b]	3,3523289[b]				2,70(10)[b]	2,97(10)[b]	3,27(10)[b]
$5p_{1/2}$	$5p_{3/2}$	100,04	96,76	93,65	-5,41925	-5,39577	-5,37281	6,35(5)	7,16(5)	8,06(5)
		45,54215484[a]	43,22672499[a]	41,04079159[a]				2,80(7)[a]	3,45(7)[a]	4,24(7)[a]

Tablo 3.4. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			A_{ki} (s^{-1})		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$5p_{1/2}$	$6p_{3/2}$	7,98	7,80	7,62	-2,90448	-2,89666	-2,88894	3,26(10)	3,48(10)	3,71(10)
		7,26945705[a]	7,07203456[a]	6,88077608[a]				3,36(10)[a]	3,57(10)[a]	3,80(10)[a]
$5p_{1/2}$	$7p_{3/2}$	5,14	5,02	4,91	-3,59919	-3,59595	-3,59289	1,59(10)	1,68(10)	1,77(10)
		4,82988103[a]	4,70631532[a]	4,5865883[a]				2,84(10)[a]	3,03(10)[a]	3,24(10)[a]
$5p_{1/2}$	$8p_{3/2}$	4,18	4,08	3,99	-5,79433	-5,97671	-6,21461	1,53(8)	1,06(8)	6,39(7)
		3,96820027[b]	3,8689399[b]	3,77276636[b]				2,14(10)[b]	2,29(10)[b]	2,44(10)[b]
$5p_{1/2}$	$9p_{3/2}$	3,70	3,62	3,54	-2,83101	-2,80435	-2,77819	1,79(11)	2,00(11)	2,22(11)
		3,53678274[b]	3,44934727[b]	3,36463391[b]				1,60(10)[b]	1,71(10)[b]	1,83(10)[b]
$5p_{3/2}$	$6f_{7/2}$	8,39	8,20	8,01	-1,94797	-1,93852	-1,92918	1,33(11)	1,43(11)	1,53(11)
		8,29200435[a]	8,09754986[a]	7,90934333[a]				1,37(11)[a]	1,46(11)[a]	1,57(11)[a]
$5p_{3/2}$	$7f_{7/2}$	5,35	5,23	5,12	-2,80627	-2,79608	-2,78602	4,54(10)	4,87(10)	5,21(10)
		5,31270211[a]	5,19119541[a]	5,07358437[a]				5,29(10)[a]	5,69(10)[a]	6,12(10)[a]
$5p_{3/2}$	$8f_{7/2}$	4,33	4,24	4,14	-3,60801	-3,60217	-3,59654	1,09(10)	1,16(10)	1,23(10)
		4,30760816[b]	4,20992221[b]	4,11536719[b]				2,27(10)[b]	2,46(10)[b]	2,65(10)[b]
$5p_{3/2}$	$9f_{7/2}$	3,83	3,75	3,66	-3,75821	-3,71782	-3,67836	9,90(9)	1,14(10)	1,30(10)
		3,8130209[b]	3,72691373[b]	3,64356616[b]				1,10(10)[b]	1,19(10)[b]	1,29(10)[b]
$5p_{3/2}$	$6f_{5/2}$	8,50	8,31	8,12	-2,72665	-2,71718	-2,70782	2,89(10)	3,09(10)	3,30(10)
		8,40446391[a]	8,20972947[a]	8,02124013[a]				2,96(10)[a]	3,17(10)[a]	3,40(10)[a]
$5p_{3/2}$	$7f_{5/2}$	5,38	5,26	5,14	-3,63275	-3,62353	-3,61444	8,95(9)	9,56(9)	1,02(10)
		5,34154853[a]	5,21999952[a]	5,10234565[a]				1,05(10)[a]	1,13(10)[a]	1,21(10)[a]
$5p_{3/2}$	$8f_{5/2}$	4,34	4,25	4,15	-4,50608	-4,50347	-4,50114	1,84(9)	1,93(9)	2,03(9)
		4,32027754[b]	4,22257725[b]	4,12800772[b]				4,20(9)[b]	4,52(9)[b]	4,87(9)[b]
$5p_{3/2}$	$9f_{5/2}$	3,84	3,75	3,67	-4,45427	-4,41552	-4,37761	2,65(9)	3,03(9)	3,46(9)
		3,81998161[b]	3,73386767[b]	4,12800772[b]				1,89(9)[b]	2,04(9)[b]	4,87(9)[b]

Tablo 3.4. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			A_{ki} (s^{-1})		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$5p_{3/2}$	$6p_{1/2}$	9,07	8,87	8,68	-2,78511	-2,77580	-2,76660	6,65(10)	7,10(10)	7,58(10)
		9,70624124[a]	9,52194954[a]	9,34429432[a]				6,53(10)[a]	6,94(10)[a]	7,38(10)[a]
$5p_{3/2}$	$7p_{1/2}$	5,50	5,38	5,26	-3,53290	-3,52755	-3,52235	3,23(10)	3,42(10)	3,62(10)
		5,64234436[a]	5,52258721[a]	5,40678419[a]				3,58(10)[a]	3,77(10)[a]	3,96(10)[a]
$5p_{3/2}$	$8p_{1/2}$	4,39	4,29	4,20	-4,50950	-4,52779	-4,54728	5,35(9)	5,37(9)	5,37(9)
		4,44803481[b]	4,35101716[b]	4,25715189[b]				2,24(10)[b]	2,35(10)[b]	2,45(10)[b]
$5p_{3/2}$	$9p_{1/2}$	3,86	3,77	3,69	-3,59563	-3,55924	-3,52361	5,68(10)	6,46(10)	7,33(10)
		3,88902225[b]	3,80325626[b]	3,72026061[b]				1,51(10)[b]	1,57(10)[b]	1,64(10)[b]
$5s_{1/2}$	$6d_{5/2}$	7,94	7,76	7,58	-2,35948	-2,35070	-2,34201	7,71(10)	8,24(10)	8,80(10)
		7,09511375[a]	6,89938142[a]	6,7098331[a]				8,31(10)[a]	8,88(10)[a]	9,48(10)[a]
$5s_{1/2}$	$7d_{5/2}$	5,15	5,03	4,92	-3,01609	-3,00823	-3,00051	4,04(10)	4,31(10)	4,59(10)
		4,78081614[a]	4,65755912[a]	4,53814623[a]				6,38(10)[a]	6,87(10)[a]	7,39(10)[a]
$5s_{1/2}$	$8d_{5/2}$	4,19	4,10	4,01	-3,85883	-3,86215	-3,86585	8,75(9)	9,09(9)	9,43(9)
		3,94595167[b]	3,84680442[b]	3,75074625[b]				4,48(10)[b]	4,84(10)[b]	5,23(10)[b]
$5s_{1/2}$	$9d_{5/2}$	3,72	3,64	3,56	-3,12097	-3,09211	-3,06384	6,08(10)	6,80(10)	7,59(10)
		3,52436516[b]	3,43698539[b]	3,3523289[b]				3,19(10)[b]	3,46(10)[b]	3,74(10)[b]
$5s_{1/2}$	$6d_{3/2}$	8,11	7,93	7,75	-2,51998	-2,51085	-2,50181	7,65(10)	8,19(10)	8,75(10)
		7,26945705[a]	7,07203456[a]	6,88077608[a]				8,70(10)[a]	9,33(10)[a]	9,99(10)[a]
$5s_{1/2}$	$7d_{3/2}$	5,19	5,07	4,96	-3,23606	-3,22902	-3,22212	3,59(10)	3,82(10)	4,06(10)
		4,82988103[a]	4,70631532[a]	4,5865883[a]				6,21(10)[a]	6,70(10)[a]	7,23(10)[a]
$5s_{1/2}$	$8d_{3/2}$	4,21	4,12	4,02	-4,19337	-4,20212	-4,21144	6,03(9)	6,18(9)	6,33(9)
		3,96820027[b]	3,8689399[b]	3,77276636[b]				4,21(10)[b]	4,55(10)[b]	4,93(10)[b]
$5s_{1/2}$	$9d_{3/2}$	3,73	3,64	3,56	-3,27127	-3,24303	-3,21537	6,42(10)	7,17(10)	8,00(10)
		3,53678274[b]	3,44934727[b]	3,36463391[b]				2,92(10)[b]	3,17(10)[b]	3,44(10)[b]

Tablo 3.4. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			A_{ki} (s^{-1})		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$6d_{3/2}$	$6g_{7/2}$	246,18	236,40	227,13	-5,83728	-5,80366	-5,77051	2,00(4)	2,34(4)	2,74(4)
		200,24322375[a]	191,35246215[a]	182,93893839[a]				56151[a]	67421[a]	80807[a]
$6d_{3/2}$	$7g_{7/2}$	13,94	13,62	13,32	-1,96904	-1,95937	-1,94981	4,61(10)	4,93(10)	5,28(10)
		13,76956109[a]	13,44706485[a]	13,1349306[a]				4,74(10)[a]	5,08(10)[a]	5,44(10)[a]
$6d_{3/2}$	$8g_{7/2}$	8,65	8,45	8,26	-3,02912	-3,01804	-3,00708	1,04(10)	1,12(10)	1,20(10)
$6d_{3/2}$	$9g_{7/2}$	6,86	6,71	6,56	-5,62352	-5,69487	-5,77568	4,22(7)	3,74(7)	3,25(7)
$6d_{3/2}$	$6d_{5/2}$	376,68	361,90	347,87	-6,90199	-6,86941	-6,83732	9,82(2)	1,15(3)	1,34(3)
		295,83945395[a]	282,60512732[a]	270,08339525[a]				3195,2[a]	3835,5[a]	4596[a]
$6d_{3/2}$	$7d_{5/2}$	14,11	13,79	13,48	-3,31691	-3,30835	-3,29989	2,69(9)	2,88(9)	3,07(9)
		13,96502702[a]	13,64206007[a]	13,32945029[a]				2,80(9)[a]	2,99(9)[a]	3,20(9)[a]
$6d_{3/2}$	$8d_{5/2}$	8,69	8,49	8,30	-3,97665	-3,97093	-3,96537	1,56(9)	1,65(9)	1,75(9)
		8,63092518[b]	8,43497445[b]					2,22(9)[b]	2,37(9)[b]	
$6d_{3/2}$	$9d_{5/2}$	6,87	6,72	6,57	-6,12903	-5,95300	-5,80314	1,75(7)	2,74(7)	4,05(7)
		6,84101271[b]	6,68669896[b]					1,65(9)[b]	1,77(9)[b]	
$6d_{3/2}$	$6s_{1/2}$	254,34	248,00	241,98	-6,00405	-5,99077	-5,97815	2,55(4)	2,77(4)	2,99(4)
		79,50589682[a]	75,4849337[a]	71,68836719[a]				7,85(6)[a]	9,69(6)[a]	1,19(7)[a]
$6d_{3/2}$	$7s_{1/2}$	14,89	14,55	14,23	-3,19694	-3,18819	-3,17958	9,56(9)	1,02(10)	1,09(10)
		16,22662271[a]	15,92195338[a]	15,62832553[a]				1,05(10)[a]	1,12(10)[a]	1,19(10)[a]
$6d_{3/2}$	$8s_{1/2}$	8,85	8,66	8,47	-3,99170	-3,98953	-3,98759	4,34(9)	4,56(9)	4,79(9)
		9,15631788[b]	8,96353491[b]					7,72(9)[b]	8,20(9)[b]	
$6d_{3/2}$	$9s_{1/2}$	6,94	6,78	6,63	-4,28866	-4,24100	-4,19484	3,57(9)	4,16(9)	4,84(9)
		7,06564665[b]	6,9125508[b]					5,74(9)[b]	6,09(9)[b]	
$6d_{5/2}$	$6g_{9/2}$	425,78	408,08	391,31	-6,40822	-6,37205	-6,33632	1,44(3)	1,70(3)	2,01(3)
		390,11225785[a]	373,12622773[a]	357,04516544[a]				2223,9[a]	2658,5[a]	3172,2[a]

Tablo 3.4. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			A_{ki} (s^{-1})		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$6d_{5/2}$	$7g_{9/2}$	14,36	14,04	13,73	-1,83232	-1,82272	-1,81322	4,76(10)	5,09(10)	5,44(10)
		14,3179135[a]	13,99519298[a]	13,68283271[a]				4,78(10)[a]	5,11(10)[a]	5,47(10)[a]
$6d_{5/2}$	$8g_{9/2}$	8,82	8,62	8,44	-2,94233	-2,93180	-2,92136	9,79(9)	1,05(10)	1,12(10)
$6d_{5/2}$	$9g_{9/2}$	6,97	6,82	6,67	-4,73227	-4,74432	-4,75729	2,54(8)	2,58(8)	2,62(8)
$6d_{5/2}$	$6g_{7/2}$	710,55	681,74	654,42	-8,18263	-8,14803	-8,11390	1,08(1)	1,28(1)	1,50(1)
		619,68809702[a]	592,60939752[a]	566,97547249[a]				21470[a]	25,673[a]	30,643[a]
$6d_{5/2}$	$7g_{7/2}$	14,48	14,16	13,85	-2,93220	-2,92266	-2,91322	4,65(9)	4,97(9)	5,31(9)
		14,4417378[a]	14,11887661[a]	13,8063742[a]				4,67(9)[a]	4,99(9)[a]	5,34(9)[a]
$6d_{5/2}$	$8g_{7/2}$	8,85	8,65	8,46	-4,08510	-4,07548	-4,06598	8,75(8)	9,36(8)	1,00(9)
$6d_{5/2}$	$9g_{7/2}$	6,99	6,83	6,68	-6,14761	-6,17705	-6,20891	1,22(7)	1,19(7)	1,15(7)
$6d_{5/2}$	$7d_{3/2}$	14,99	14,67	14,36	-3,26668	-3,25718	-3,24780	4,01(9)	4,29(9)	4,57(9)
		15,12805063[a]	14,80605829[a]	14,49443888[a]				4,12(9)[a]	4,40(9)[a]	4,69(9)[a]
$6d_{5/2}$	$8d_{3/2}$	8,96	8,77	8,58	-3,95194	-3,94537	-3,93894	2,32(9)	2,46(9)	2,61(9)
		9,00403306[b]	8,80838384[b]	8,61901853[b]				2,89(9)[b]	3,08(9)[b]	3,28(9)[b]
$6d_{5/2}$	$9d_{3/2}$	7,03	6,88	6,73	-5,31259	-5,35190	-5,39462	1,64(8)	1,57(8)	1,49(8)
		7,05214772[b]	6,89800781[b]	6,74881545[b]				2,05(9)[b]	2,18(9)[b]	2,32(9)[b]
$6d_{5/2}$	$6s_{1/2}$	151,83	147,16	142,71	-5,14455	-5,12332	-5,10259	3,46(5)	3,86(5)	4,31(5)
		62,66490594[a]	59,57280478[a]	56,6513672[a]				2,66(7)[a]	3,26(7)[a]	3,99(7)[a]
$6d_{5/2}$	$7s_{1/2}$	15,50	15,16	14,84	-2,97824	-2,96870	-2,95929	1,46(10)	1,56(10)	1,66(10)
		17,16829368[a]	16,87255178[a]	16,58819856[a]				1,46(10)[a]	1,55(10)[a]	1,65(10)[a]
$6d_{5/2}$	$8s_{1/2}$	9,07	8,87	8,68	-3,69570	-3,69023	-3,68493	8,17(9)	8,65(9)	9,15(9)
		9,44875976[b]	9,25714875[b]	9,07195457[b]				1,02(10)[b]	1,08(10)[b]	1,13(10)[b]
$6d_{5/2}$	$9s_{1/2}$	7,07	6,91	6,76	-6,05236	-5,83638	-5,65902	5,92(7)	1,02(8)	1,60(8)
		7,23852716[b]	7,08587196[b]	6,93821105[b]				7,51(9)[b]	7,90(9)[b]	8,29(9)[b]

Tablo 3.4. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			A_{ki} (s^{-1})		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$6f_{5/2}$	$6f_{7/2}$	662,42	634,51	608,06	-7,90566	-7,86904	-7,83285	2,36(1)	2,80(1)	3,31(1)
		619,68809702[a]	592,60939752[a]	566,97547249[a]				32592[a]	38,95[a]	46,462[a]
$6f_{5/2}$	$7f_{7/2}$	14,46	14,14	13,82	-3,53621	-3,52725	-3,51840	1,16(9)	1,24(9)	1,32(9)
		14,4417378[a]	14,11887661[a]	13,8063742[a]				1,18(9)[a]	1,26(9)[a]	1,35(9)[a]
$6f_{5/2}$	$8f_{7/2}$	8,84	8,65	8,46	-4,18414	-4,17677	-4,16955	6,98(8)	7,42(8)	7,89(8)
		8,83681034[b]	8,64099696[b]	8,451465[b]				8,45(8)[b]	9,03(8)[b]	9,65(8)[b]
$6f_{5/2}$	$9f_{7/2}$	6,98	6,83	6,68	-5,54232	-5,58098	-5,62309	4,91(7)	4,69(7)	4,45(7)
		6,97959149[b]	6,82538728[b]	6,67612967[b]				5,96(8)[b]	6,37(8)[b]	6,81(8)[b]
$6f_{5/2}$	$6p_{3/2}$	427,61	412,06	397,29	-7,14767	-7,11887	-7,09060	4,33(2)	4,98(2)	5,72(2)
		295,83945395[a]	282,60512732[a]	270,08339525[a]				2696,5[a]	3239,8[a]	3885,6[a]
$6f_{5/2}$	$7p_{3/2}$	14,95	14,62	14,30	-3,87166	-3,86226	-3,85298	1,00(9)	1,07(9)	1,14(9)
		15,12805063[a]	14,80605829[a]	14,49443888[a]				1,07(9)[a]	1,15(9)[a]	1,23(9)[a]
$6f_{5/2}$	$8p_{3/2}$	8,95	8,76	8,56	-4,58569	-4,58145	-4,57744	5,40(8)	5,70(8)	6,01(8)
		9,00403306[b]	8,80838384[b]	8,61901853[b]				8,61(8)[b]	9,21(8)[b]	9,84(8)[b]
$6f_{5/2}$	$9p_{3/2}$	7,02	6,87	6,72	-5,19936	-5,14081	-5,08456	2,14(8)	2,56(8)	3,04(8)
		7,05214772[b]	6,89800781[b]	6,74881545[b]				6,48(8)[b]	6,93(8)[b]	7,40(8)[b]
$6f_{5/2}$	$6p_{1/2}$	135,30	130,91	126,74	-5,09645	-5,07286	-5,04980	4,86(5)	5,48(5)	6,17(5)
		62,66490594[a]	59,57280478[a]	56,6513672[a]				2,20(7)[a]	2,70(7)[a]	3,31(7)[a]
$6f_{5/2}$	$7p_{1/2}$	15,60	15,26	14,94	-3,25988	-3,25014	-3,24054	7,54(9)	8,05(9)	8,59(9)
		17,16829368[a]	16,87255178[a]	16,58819856[a]				8,01(9)[a]	8,52(9)[a]	9,07(9)[a]
$6f_{5/2}$	$8p_{1/2}$	9,08	8,89	8,69	-4,03156	-4,02753	-4,02372	3,76(9)	3,97(9)	4,18(9)
		9,44875976[b]	9,25714875[b]	9,07195457[b]				5,86(9)[b]	6,21(9)[b]	6,57(9)[b]
$6f_{5/2}$	$9p_{1/2}$	7,07	6,91	6,76	-4,70203	-4,64262	-4,58560	1,32(9)	1,59(9)	1,89(9)
		7,23852716[b]	7,08587196[b]	6,93821105[b]				4,34(9)[b]	4,59(9)[b]	4,86(9)[b]

Tablo 3.4. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			A_{ki} (s^{-1})		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$6f_{7/2}$	$7f_{5/2}$	14,98	14,66	14,35	-3,51195	-3,50248	-3,49311	1,52(9)	1,63(9)	1,74(9)
		15,01196639[a]	14,68930211[a]	14,37699926[a]				1,54(9)[a]	1,65(9)[a]	1,76(9)[a]
$6f_{7/2}$	$8f_{5/2}$	9,01	8,81	8,62	-4,18197	-4,17445	-4,16706	9,01(8)	9,58(8)	1,02(9)
		9,01969391[b]	8,82394105[b]	8,63447038[b]				1,04(9)[b]	1,10(9)[b]	1,18(9)[b]
$6f_{7/2}$	$9f_{5/2}$	7,07	6,92	6,77	-5,07676	-5,08650	-5,09698	1,86(8)	1,90(8)	1,94(8)
		7,08299265[b]	6,92882258[b]	6,77959953[b]				7,09(8)[b]	7,55(8)[b]	8,05(8)[b]
$6f_{7/2}$	$6p_{3/2}$	259,86	249,82	240,29	-5,70931	-5,67723	-5,64562	2,41(4)	2,81(4)	3,27(4)
		200,24322375[a]	191,35246215[a]	182,93893839[a]				87983[a]	1,06(5)[a]	1,26(5)[a]
$6f_{7/2}$	$7p_{3/2}$	15,29	14,96	14,65	-3,06171	-3,05165	-3,04170	6,19(9)	6,61(9)	7,06(9)
		15,50660346[a]	15,18545963[a]	14,87470308[a]				6,50(9)[a]	6,96(9)[a]	7,44(9)[a]
$6f_{7/2}$	$8p_{3/2}$	9,07	8,88	8,69	-3,72324	-3,71658	-3,71008	3,83(9)	4,06(9)	4,31(9)
		9,1367901[b]	8,94128465[b]	8,75206523[b]				5,18(9)[b]	5,54(9)[b]	5,92(9)[b]
$6f_{7/2}$	$9p_{3/2}$	7,10	6,94	6,79	-8,40914	-7,06549	-6,54894	1,29(5)	2,97(6)	1,02(7)
		7,13332608[b]	6,97924664[b]	6,8301156[b]				3,90(9)[b]	4,16(9)[b]	4,45(9)[b]
$6g_{7/2}$	$6g_{9/2}$	1062,36	1016,62	973,31	-8,79273	-8,75476	-8,71720	9,53(-1)	1,13517	1,35031
		1053,01988031[a]	1007,44904141[a]	964,30026811[a]				0,98848[a]	1,1792[a]	1,4041[a]
$6g_{7/2}$	$7g_{9/2}$	14,66	14,33	14,02	-3,76118	-3,75200	-3,74293	5,38(8)	5,75(8)	6,13(8)
		14,65655364[a]	14,33370079[a]	14,02120683[a]				5,41(8)[a]	5,78(8)[a]	6,17(8)[a]
$6g_{7/2}$	$8g_{9/2}$	8,93	8,74	8,55	-4,44284	-4,43461	-4,42650	3,02(8)	3,21(8)	3,42(8)
$6g_{7/2}$	$9g_{9/2}$	7,04	6,89	6,74	-5,35757	-5,36632	-5,37576	5,90(7)	6,05(7)	6,18(7)
$6g_{7/2}$	$7d_{5/2}$	14,96	14,64	14,33	-4,45390	-4,44419	-4,43459	1,75(8)	1,86(8)	1,99(8)
		15,01196639[a]	14,68930211[a]	14,37699926[a]				1,79(8)[a]	1,91(8)[a]	2,04(8)[a]
$6g_{7/2}$	$8d_{5/2}$	9,00	8,81	8,62	-5,13148	-5,12528	-5,11926	1,01(8)	1,07(8)	1,14(8)
$6g_{7/2}$	$9d_{5/2}$	7,07	6,92	6,77	-5,90450	-5,84146	-5,78109	2,77(7)	3,35(7)	4,02(7)

Tablo 3.4. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			A_{ki} (s^{-1})		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$6g_{7/2}$	$7d_{3/2}$	15,32	14,99	14,68	-3,45068	-3,44031	-3,43005	2,52(9)	2,69(9)	2,88(9)
		15,50660346[a]	15,18545963[a]	14,87470308[a]				2,65(9)[a]	2,83(9)[a]	3,03(9)[a]
$6g_{7/2}$	$8d_{3/2}$	9,08	8,88	8,69	-4,15914	-4,15293	-4,14691	1,40(9)	1,49(9)	1,57(9)
$6g_{7/2}$	$9d_{3/2}$	7,10	6,95	6,80	-4,99406	-4,92960	-4,86797	3,35(8)	4,06(8)	4,89(8)
$6g_{9/2}$	$7g_{7/2}$	14,99	14,67	14,35	-3,74968	-3,74025	-3,73093	6,60(8)	7,05(8)	7,52(8)
		14,99691522[a]	14,67413732[a]	14,36171927[a]				6,65(8)[a]	7,10(8)[a]	7,57(8)[a]
$6g_{9/2}$	$8g_{7/2}$	9,04	8,84	8,65	-4,45007	-4,44197	-4,43399	3,62(8)	3,86(8)	4,10(8)
$6g_{9/2}$	$9g_{7/2}$	7,10	6,95	6,80	-5,17729	-5,17858	-5,18021	1,10(8)	1,14(8)	1,19(8)
$6g_{9/2}$	$7d_{5/2}$	15,18	14,85	14,54	-3,33431	-3,32410	-3,31400	2,23(9)	2,39(9)	2,55(9)
		15,22907373[a]	14,90665137[a]	14,59459379[a]				2,28(9)[a]	2,44(9)[a]	2,61(9)[a]
$6g_{9/2}$	$8d_{5/2}$	9,08	8,88	8,69	-3,97841	-3,97061	-3,96295	1,42(9)	1,51(9)	1,60(9)
$6g_{9/2}$	$9d_{5/2}$	7,12[a]	6,97[a]	6,82[a]	-8,49661	-7,95889	-7,13286	6,99(4)[a]	2,52(5)	1,76(6)
$6p_{1/2}$	$7f_{5/2}$	13,22	12,91	12,62	-2,31644	-2,30730	-2,29827	3,07(10)	3,29(10)	3,51(10)
		11,87858161[a]	11,55396313[a]	11,23960312[a]				3,48(10)[a]	3,73(10)[a]	3,99(10)[a]
$6p_{1/2}$	$8f_{5/2}$	8,34	8,15	7,97	-3,06424	-3,05565	-3,04720	1,38(10)	1,47(10)	1,57(10)
		7,78572941[b]	7,58715663[b]	7,39478523[b]				2,48(10)[b]	2,68(10)[b]	2,90(10)[b]
$6p_{1/2}$	$9f_{5/2}$	6,66	6,51	6,36	-6,43576	-6,88208	-7,88541	9,20(6)	3,45(6)	3,58(5)
		6,29901931[b]	6,14257027[b]	5,99100485[b]				1,65(10)[b]	1,79(10)[b]	1,95(10)[b]
$6p_{1/2}$	$6p_{3/2}$	197,93	191,87	186,10	-5,65024	-5,62938	-5,60904	9,52(4)	1,06(5)	1,18(5)
		79,50589682[a]	75,4849337[a]	71,68836719[a]				7,91(6)[a]	9,74(6)[a]	1,20(7)[a]
$6p_{1/2}$	$7p_{3/2}$	13,46	13,15	12,85	-2,96070	-2,95249	-2,94438	1,01(10)	1,08(10)	1,15(10)
		12,18616584[a]	11,85872416[a]	11,54150645[a]				1,03(10)[a]	1,09(10)[a]	1,16(10)[a]
$6p_{1/2}$	$8p_{3/2}$	8,40	8,21	8,02	-3,70529	-3,70227	-3,69940	4,66(9)	4,91(9)	5,18(9)
		7,87282318[b]	7,67374978[b]	7,48086867[b]				9,40(9)[b]	1,00(10)[b]	1,07(10)[b]

Tablo 3.4. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			A_{ki} (s^{-1})		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$6p_{1/2}$	$9p_{3/2}$	6,68	6,53	6,38	-3,90581	-3,86888	-3,83304	4,65(9)	5,29(9)	6,01(9)
		6,33879589[b]	6,18216713[b]	6,03041831[b]				7,51(9)[b]	8,02(9)[b]	8,57(9)[b]
$6p_{3/2}$	$7f_{7/2}$	13,99	13,67	13,36	-2,07226	-2,06296	-2,05376	3,61(10)	3,86(10)	4,13(10)
		13,76956109[a]	13,44706485[a]	13,1349306[a]				3,72(10)[a]	3,99(10)[a]	4,27(10)[a]
$6p_{3/2}$	$8f_{7/2}$	8,66	8,47	8,28	-2,84570	-2,83640	-2,82721	1,58(10)	1,69(10)	1,81(10)
		8,58050807[b]	8,38462676[b]	8,19502578[b]				1,94(10)[b]	2,09(10)[b]	2,25(10)[b]
$6p_{3/2}$	$9f_{7/2}$	6,87	6,72	6,57	-4,09079	-4,10371	-4,11748	1,43(9)	1,46(9)	1,47(9)
		6,81872084[b]	6,66443013[b]	6,51508478[b]				1,06(10)[b]	1,14(10)[b]	1,23(10)[b]
$6p_{3/2}$	$7f_{5/2}$	14,17	13,85	13,54	-2,84812	-2,83873	-2,82946	7,86(9)	8,41(9)	8,98(9)
		13,96502702[a]	13,64206007[a]	13,32945029[a]				8,13(9)[a]	8,71(9)[a]	9,32(9)[a]
$6p_{3/2}$	$8f_{5/2}$	8,71	8,51	8,32	-3,66087	-3,65226	-3,64378	3,20(9)	3,42(9)	3,64(9)
		8,63092518[b]	8,43497445[b]	8,24530322[b]				3,97(9)[b]	4,26(9)[b]	4,57(9)[b]
$6p_{3/2}$	$9f_{5/2}$	6,89	6,73	6,59	-5,01365	-5,03307	-5,05375	2,27(8)	2,27(8)	2,27(8)
		6,84101271[b]	6,68669896[b]	6,53733027[b]				2,05(9)[b]	2,21(9)[b]	2,37(9)[b]
$6p_{3/2}$	$7p_{1/2}$	15,05	14,72	14,40	-2,85336	-2,84406	-2,83487	2,06(10)	2,21(10)	2,35(10)
		16,22662271[a]	15,92195338[a]	15,62832553[a]				2,02(10)[a]	2,15(10)[a]	2,28(10)[a]
$6p_{3/2}$	$8p_{1/2}$	8,89	8,70	8,51	-3,61213	-3,60686	-3,60172	1,03(10)	1,09(10)	1,15(10)
		9,15631788[b]	8,96353491[b]	8,77713536[b]				1,21(10)[b]	1,28(10)[b]	1,34(10)[b]
$6p_{3/2}$	$9p_{1/2}$	6,96	6,80	6,65	-5,78810	-5,61990	-5,47614	1,12(8)	1,73(8)	2,52(8)
		7,06564665[b]	6,9125508[b]	6,76443842[b]				8,10(9)[b]	8,48(9)[b]	8,86(9)[b]
$6s_{1/2}$	$7d_{5/2}$	13,37	13,06	12,77	-2,47505	-2,46622	-2,45749	2,08(10)	2,23(10)	2,38(10)
		11,87858161[a]	11,55396313[a]	11,23960312[a]				2,19(10)[a]	2,34(10)[a]	2,49(10)[a]
$6s_{1/2}$	$8d_{5/2}$	8,40	8,21	8,03	-3,14269	-3,13547	-3,12836	1,13(10)	1,21(10)	1,28(10)
		7,78572941[b]	7,58715663[b]	7,39478523[b]				1,90(10)[b]	2,04(10)[b]	2,19(10)[b]

Tablo 3.4. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			A_{ki} (s^{-1})		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$6s_{1/2}$	$9d_{5/2}$	6,69	6,54	6,40	-5,71903	-5,54222	-5,39319	4,74(7)	7,45(7)	1,10(8)
		6,29901931[b]	6,14257027[b]	5,99100485[b]				1,46(10)[b]	1,57(10)[b]	1,69(10)[b]
$6s_{1/2}$	$7d_{3/2}$	13,65	13,34	13,04	-2,63414	-2,62497	-2,61590	2,08(10)	2,22(10)	2,37(10)
		12,18616584[a]	11,85872416[a]	11,54150645[a]				2,32(10)[a]	2,48(10)[a]	2,65(10)[a]
$6s_{1/2}$	$8d_{3/2}$	8,47	8,28	8,09	-3,35461	-3,34795	-3,34141	1,03(10)	1,09(10)	1,16(10)
		7,87282318[b]	7,67374978[b]	7,48086867[b]				1,88(10)[b]	2,03(10)[b]	2,18(10)[b]
$6s_{1/2}$	$9d_{3/2}$	6,72	6,57	6,42	-5,46937	-5,35284	-5,24867	1,25(8)	1,71(8)	2,28(8)
		6,33879589[b]	6,18216713[b]	6,03041831[b]				1,39(10)[b]	1,50(10)[b]	1,62(10)[b]
$7d_{3/2}$	$7g_{7/2}$	421,59	405,49	390,20	-5,88080	-5,84918	-5,81804	6,17(3)	7,18(3)	8,33(3)
		318,33200764[a]	304,20617512[a]	290,83842356[a]				25018[aa]	30034[a]	35991[a]
$7d_{3/2}$	$8g_{7/2}$	21,59	21,10	20,63	-2,07532	-2,06587	-2,05653	1,50(10)	1,61(10)	1,72(10)
$7d_{3/2}$	$9g_{7/2}$	13,08	12,79	12,50	-3,07272	-3,06460	-3,05660	4,12(9)	4,39(9)	4,68(9)
$7d_{3/2}$	$7d_{5/2}$	649,75	625,28	602,06	-7,04566	-7,01509	-6,98501	2,37(2)	2,75(2)	3,17(2)
		470,61699657[a]	449,5826294[a]	429,68043706[a]				1150,6[a]	1381,3[a]	1655,2[a]
$7d_{3/2}$	$8d_{5/2}$	21,84	21,35	20,87	-3,37284	-3,36437	-3,35601	9,88(8)	1,05(9)	1,12(9)
		21,56108632[b]	21,06346134[b]	20,58179386[b]				1,05(9)[b]	1,12(9)[b]	1,20(9)[b]
$7d_{3/2}$	$9d_{5/2}$	13,14	12,84	12,56	-4,31555	-4,31739	-4,31953	3,11(8)	3,24(8)	3,38(8)
		13,03872659[b]	12,74336692[b]	12,45747253[b]				8,93(8)[b]	9,55(8)[b]	1,02(9)[b]
$7d_{3/2}$	$7s_{1/2}$	460,07	449,51	439,48	-6,21353	-6,20269	-6,19250	4,82(3)	5,17(3)	5,54(3)
		127,29993943[a]	120,88883227[a]	114,8348747[a]				2,71(6)[a]	3,34(6)[a]	4,12(6)[a]
$7d_{3/2}$	$8s_{1/2}$	22,94	22,43	21,93	-3,22212	-3,21361	-3,20522	3,80(9)	4,05(9)	4,32(9)
		25,16886694[a]	24,70068814[a]	24,24956595[a]				4,24(9)[a]	4,52(9)[a]	4,82(9)[a]
$7d_{3/2}$	$9s_{1/2}$	13,37	13,07	12,78	-4,55933	-4,57581	-4,59330	5,15(8)	5,19(8)	5,21(8)
		13,87977432[a]	13,58954678[a]	13,30895233[a]				3,27(9)[a]	3,47(9)[a]	3,67(9)[a]

Tablo 3.4. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			A_{ki} (s^{-1})		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$7d_{5/2}$	$7g_{9/2}$	709,57	680,80	653,53	-6,41679	-6,38198	-6,34762	5,07(2)	5,97(2)	7,01(2)
		619,06527109[a]	592,10145484[a]	566,57439341[a]				1000,2[aa]	1195,7[a]	1426,9[a]
$7d_{5/2}$	$8g_{9/2}$	22,15	21,66	21,18	-1,93333	-1,92385	-1,91449	1,58(10)	1,69(10)	1,81(10)
$7d_{5/2}$	$9g_{9/2}$	13,31	13,01	12,73	-2,92225	-2,91370	-2,90527	4,51(9)	4,81(9)	5,12(9)
$7d_{5/2}$	$7g_{7/2}$	1200,65	1153,55	1108,89	-8,20689	-8,17402	-8,14163	3,59199	4,1972	4,89385
		983,76376033[a]	940,77003572[a]	900,07035907[a]				9,6753[aa]	11,571[a]	13,812[a]
$7d_{5/2}$	$8g_{7/2}$	22,34	21,84	21,36	-3,03143	-3,02197	-3,01261	1,55(9)	1,66(9)	1,78(9)
$7d_{5/2}$	$9g_{7/2}$	13,35	13,06	12,77	-4,05413	-4,04627	-4,03853	4,13(8)	4,40(8)	4,68(8)
$7d_{5/2}$	$8d_{3/2}$	23,09	22,59	22,10	-3,32203	-3,31268	-3,30343	1,49(9)	1,59(9)	1,70(9)
		23,34588428[b]	22,84983168[b]	22,36976194[b]				1,55(9)[b]	1,66(9)[a]	1,77(9)[a]
$7d_{5/2}$	$9d_{3/2}$	13,51	13,22	12,93	-4,16019	-4,15737	-4,15473	6,32(8)	6,65(8)	6,99(8)
		13,59184418[b]	13,29695525[b]	13,01153846[b]				1,18(9)[b]	1,25(9)[a]	1,34(9)[a]
$7d_{5/2}$	$7s_{1/2}$	269,35	261,51	254,04	-5,33197	-5,31281	-5,29417	7,13(4)	7,91(4)	8,75(4)
		100,19705339[a]	95,27123218[a]	90,61691762[a]				9,16(6)[a]	1,12(7)[a]	1,37(7)[a]
$7d_{5/2}$	$8s_{1/2}$	23,78	23,26	22,76	-3,00297	-2,99371	-2,98456	5,86(9)	6,25(9)	6,67(9)
		26,59096711[b]	26,1366729[b]	25,69997708[b]				5,90(9)[b]	6,27(9)[b]	6,64(9)[b]
$7d_{5/2}$	$9s_{1/2}$	13,65	13,35	13,06	-3,98664	-3,98820	-3,99008	1,85(9)	1,92(9)	2,00(9)
		14,30156638[b]	14,01312181[b]	13,73436142[b]				4,30(9)[b]	4,53(9)[b]	4,76(9)[b]
$7f_{5/2}$	$7f_{7/2}$	1106,60	1061,16	1018,09	-7,98023	-7,94495	-7,91013	7,12597	8,40496	9,8935
		983,76376033[a]	940,77003572[a]	900,07035907[a]				12,652[a]	15,123[a]	18,043[a]
$7f_{5/2}$	$8f_{7/2}$	22,30	21,81	21,33	-3,57053	-3,56168	-3,55294	4,51(8)	4,81(8)	5,13(8)
		22,25398932[b]	21,7565445[b]	21,27505988[b]				4,66(8)[b]	4,98(8)[b]	5,32(8)[b]
$7f_{5/2}$	$9f_{7/2}$	13,34	13,04	12,76	-4,37508	-4,37218	-4,36950	1,98(8)	2,08(8)	2,19(8)
		13,32487279[b]	13,02971882[b]	12,74403297[b]				3,66(8)[b]	3,91(8)[b]	4,18(8)[b]

Tablo 3.4. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			A_{ki} (s^{-1})		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$7f_{5/2}$	$7p_{3/2}$	742,25	716,56	692,15	-7,27425	-7,24768	-7,22167	1,07(2)	1,22(2)	1,39(2)
		470,61699657[a]	449,5826294[a]	429,68043706[a]				1028,5[a]	1235,6[a]	1481,8[a]
$7f_{5/2}$	$8p_{3/2}$	23,01	22,51	22,03	-3,83566	-3,82661	-3,81769	4,60(8)	4,91(8)	5,23(8)
		23,34588428[b]	22,84983168[b]	22,36976194[b]				5,08(8)[b]	5,43(8)[b]	5,81(8)[b]
$7f_{5/2}$	$9p_{3/2}$	13,49	13,20	12,91	-5,04139	-5,05421	-5,06791	8,33(7)	8,45(7)	8,56(7)
		13,59184418[b]	13,29695525[b]	13,01153846[b]				4,33(8)[b]	4,63(8)[b]	4,94(8)[b]
$7f_{5/2}$	$7p_{1/2}$	241,44	234,03	226,99	-5,26018	-5,23889	-5,21812	1,05(5)	1,17(5)	1,31(5)
		100,19705339[a]	95,27123218[a]	90,61691762[a]				8,11(6)[a]	9,95(6)[a]	1,22(7)[a]
$7f_{5/2}$	$8p_{1/2}$	23,91	23,39	22,89	-3,23394	-3,22462	-3,21543	3,40(9)	3,63(9)	3,88(9)
		26,59096711[b]	26,1366729[b]	25,69997708[b]				3,66(9)[b]	3,89(9)[b]	4,13(9)[b]
$7f_{5/2}$	$9p_{1/2}$	13,67	13,37	13,08	-4,44565	-4,45604	-4,46717	6,40(8)	6,53(8)	6,65(8)
		14,30156638[b]	14,01312181[b]	13,73436142[b]				2,81(9)[b]	2,97(9)[b]	3,14(9)[b]
$7f_{7/2}$	$8f_{5/2}$	23,06	22,56	22,08	-3,54412	-3,53473	-3,52544	5,97(8)	6,38(8)	6,80(8)
		22,76905433[b]	22,63040756[b]	22,14923085[b]				3,83(9)[b]	6,55(8)[b]	6,99(8)[b]
$7f_{7/2}$	$9f_{5/2}$	13,57	13,27	12,99	-4,30690	-4,30199	-4,29724	2,98(8)	3,15(8)	3,33(8)
		13,50783355[b]	13,30053372[b]	13,01494106[b]				2,92(9)[b]	4,83(8)[b]	5,15(8)[b]
$7f_{7/2}$	$7p_{3/2}$	444,26	427,73	412,03	-5,81890	-5,78868	-5,75895	6,41(3)	7,41(3)	8,56(3)
		318,33200764[a]	304,20617512[a]	290,83842356[a]				3,35(4)[a]	40198[a]	48151[a]
$7f_{7/2}$	$8p_{3/2}$	23,50	23,00	22,51	-3,02461	-3,01490	-3,00531	2,85(9)	3,05(9)	3,25(9)
		23,91337717[b]	23,41863364[b]	22,93989514[b]				3,07(9)[b]	3,28(9)[b]	3,51(9)[b]
$7f_{7/2}$	$9p_{3/2}$	13,66	13,36	13,08	-3,95375	-3,95458	-3,95573	9,94(8)	1,04(9)	1,08(9)
		13,78226222[b]	13,48759045[b]	13,20239405[b]				2,59(9)[b]	2,77(9)[b]	2,96(9)[b]
$7g_{7/2}$	$7g_{9/2}$	1734,85	1661,23	1591,50	-8,78771	-8,75050	-8,71372	3,61(-1)	4,29(-1)	5,09(-1)
		1669,91089064[a]	1597,59535952[a]	1529,12439798[a]				0,43382[aa]	0,51767[a]	0,61656[a]

Tablo 3.4. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			A_{ki} (s^{-1})		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$7g_{7/2}$	$8g_{9/2}$	22,57	22,07	21,59	-3,75109	-3,74199	-3,73301	2,32(8)	2,48(8)	2,65(8)
$7g_{7/2}$	$9g_{9/2}$	13,46	13,16	12,88	-4,51112	-4,50580	-4,50064	1,14(8)	1,20(8)	1,27(8)
$7g_{7/2}$	$8d_{5/2}$	23,03	22,53	22,05	-4,31804	-4,30873	-4,29953	1,01(8)	1,08(8)	1,15(8)
$7g_{7/2}$	$9d_{5/2}$	13,56	13,26	12,98	-5,48779	-5,49889	-5,51080	1,97(7)	2,00(7)	2,04(7)
$7g_{7/2}$	$8d_{3/2}$	23,54	23,04	22,55	-3,32183	-3,31197	-3,30222	1,43(9)	1,53(9)	1,64(9)
$7g_{7/2}$	$9d_{3/2}$	13,67	13,37	13,08	-4,48800	-4,49707	-4,50684	2,90(8)	2,97(8)	3,03(8)
$7g_{9/2}$	$8g_{7/2}$	23,06	22,56	22,08	-3,73700	-3,72760	-3,71831	2,87(8)	3,07(8)	3,27(8)
$7g_{9/2}$	$9g_{7/2}$	13,61	13,31	13,02	-4,47834	-4,47207	-4,46594	1,50(8)	1,59(8)	1,68(8)
$7g_{9/2}$	$8d_{5/2}$	23,34	22,84	22,36	-3,19637	-3,18652	-3,17678	1,30(9)	1,39(9)	1,48(9)
$7g_{9/2}$	$9d_{5/2}$	13,67	13,37	13,08	-4,12047	-4,12091	-4,12166	4,51(8)	4,71(8)	4,91(8)
$7p_{1/2}$	$8f_{5/2}$	20,66	20,19	19,73	-2,43166	-2,42267	-2,41378	9,64(9)	1,03(10)	1,10(10)
		18,43817056[b]	17,93797888[b]	17,45359522[b]				1,08(10)[b]	1,16(10)[b]	1,24(10)[b]
$7p_{1/2}$	$9f_{5/2}$	12,70	12,41	12,14	-3,34489	-3,33996	-3,33516	3,12(9)	3,30(9)	3,49(9)
		11,82731141[b]	11,52814034[b]	11,2383213[b]				8,91(9)[b]	9,62(9)[b]	1,04(10)[b]
$7p_{1/2}$	$7p_{3/2}$	357,83	347,55	337,75	-5,86692	-5,84836	-5,83033	1,77(4)	1,96(4)	2,16(4)
		127,29993943[a]	120,88883227[a]	114,8348747[a]				2,69(6)[a]	3,32(6)[a]	4,08(6)[a]
$7p_{1/2}$	$8p_{3/2}$	21,01	20,54	20,08	-3,02553	-3,01728	-3,00913	3,56(9)	3,80(9)	4,05(9)
		18,93421719[b]	18,42966486[b]	17,94086597[b]				3,71(9)[b]	3,94(9)[b]	4,18(9)[b]
$7p_{1/2}$	$9p_{3/2}$	12,78	12,49	12,22	-4,37427	-4,38706	-4,40037	4,31(8)	4,38(8)	4,45(8)
		11,96832702[b]	11,66840251[b]	11,37781603[b]				3,61(9)[b]	3,85(9)[b]	4,10(9)[b]
$7p_{3/2}$	$8f_{7/2}$	21,65	21,16	20,69	-2,18098	-2,17183	-2,16278	1,17(10)	1,25(10)	1,34(10)
		21,24918267[b]	20,75228418[b]	20,2713507[b]				1,23(10)[b]	1,31(10)[b]	1,40(10)[b]
$7p_{3/2}$	$9f_{7/2}$	13,10	12,81	12,53	-3,01847	-3,01191	-3,00549	4,65(9)	4,94(9)	5,25(9)
		12,95798526[b]	12,66272997[b]	12,37694122[b]				7,69(9)[b]	8,26(9)[b]	8,87(9)[b]

Tablo 3.4. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			A_{ki} (s^{-1})		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$7p_{3/2}$	$8f_{5/2}$	21,92	21,43	20,96	-2,95548	-2,94623	-2,93708	2,56(9)	2,74(9)	2,93(9)
		21,56108632[b]	21,06346134[b]	20,58179386[b]				2,69(9)[b]	2,88(9)[b]	3,08(9)[b]
$7p_{3/2}$	$9f_{5/2}$	13,17	12,87	12,59	-3,83027	-3,82429	-3,81845	9,48(8)	1,01(9)	1,07(9)
		13,03872659[b]	12,74336692[b]	12,45747253[b]				1,60(9)[b]	1,71(9)[b]	1,83(9)[b]
$7p_{3/2}$	$8p_{1/2}$	23,16	22,65	22,16	-2,92364	-2,91450	-2,90548	7,41(9)	7,91(9)	8,45(9)
		25,16886694[b]	24,70068814[b]	24,24956595[b]				7,36(9)[b]	7,83(9)[b]	8,31(9)[b]
$7p_{3/2}$	$9p_{1/2}$	13,42	13,12	12,83	-3,92667	-3,92701	-3,92757	2,19(9)	2,29(9)	2,39(9)
		13,87977432[b]	13,58954678[b]	13,30895233[b]				4,73(9)[b]	4,98(9)[b]	5,23(9)[b]
$7s_{1/2}$	$8d_{5/2}$	20,85	20,38	19,92	-2,57652	-2,56774	-2,55905	6,78(9)	7,24(9)	7,73(9)
		18,43817056[b]	17,93797888[b]	17,45359522[b]				7,11(9)[b]	7,57(9)[b]	8,04(9)[b]
$7s_{1/2}$	$9d_{5/2}$	12,77	12,49	12,21	-3,49675	-3,49402	-3,49142	2,17(9)	2,29(9)	2,40(9)
		11,82731141[b]	11,52814034[b]	11,2383213[b]				6,73(9)[b]	7,21(9)[b]	7,72(9)[b]
$7s_{1/2}$	$8d_{3/2}$	21,26	20,79	20,33	-2,73593	-2,72684	-2,71784	6,77(9)	7,24(9)	7,73(9)
		18,93421719[b]	18,42966486[b]	17,94086597[b]				7,56(9)[b]	8,08(9)[b]	8,63(9)[b]
$7s_{1/2}$	$9d_{3/2}$	12,87	12,58	12,30	-3,70350	-3,70106	-3,69873	1,99(9)	2,10(9)	2,20(9)
		11,96832702[b]	11,66840251[b]	11,37781603[b]				6,73(9)[b]	7,24(9)[b]	7,77(9)[b]
$8d_{3/2}$	$8g_{7/2}$	686,69	661,57	637,71	-5,97834	-5,94880	-5,91975	1,86(3)	2,14(3)	2,47(3)
$8d_{3/2}$	$9g_{7/2}$	31,65	30,94	30,25	-2,18851	-2,17953	-2,17066	5,39(9)	5,76(9)	6,15(9)
$8d_{3/2}$	$8d_{5/2}$	1067,39	1029,05	992,61	-7,20288	-7,17443	-7,14647	6,12(1)	7,03(1)	8,05(1)
		703,7893402[b]	672,36194949[b]	642,62550357[b]				4,68(2)[b]	561,67[a]	673,08[a]
$8d_{3/2}$	$9d_{5/2}$	31,99	31,27	30,58	-3,47531	-3,46782	-3,46043	3,64(8)	3,87(8)	4,12(8)
		31,51032106[b]	30,78446834[b]	30,08189066[b]				4,43(8)[b]	4,74(8)[b]	5,06(8)[b]
$8d_{3/2}$	$8s_{1/2}$	790,91	774,30	758,52	-6,43015	-6,42165	-6,41380	9,90(2)	1,05(3)	1,12(3)
		191,30163191[b]	181,69985599[b]	172,63220073[b]				1,07(6)[b]	1,32(6)[b]	1,62(6)[b]

Tablo 3.4. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			A_{ki} (s^{-1})		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$8d_{3/2}$	$9s_{1/2}$	33,37	32,63	31,91	-3,32518	-3,31804	-3,31102	1,42(9)	1,51(9)	1,60(9)
		36,91629569[b]	36,23491994[b]	35,57847659[b]				1,89(9)[b]	2,01(9)[b]	2,14(9)[b]
$8d_{5/2}$	$8g_{9/2}$	1123,90	1079,68	1037,74	-6,47952	-6,44625	-6,41345	1,75(2)	2,05(2)	2,39(2)
$8d_{5/2}$	$9g_{9/2}$	32,37	31,64	30,95	-2,03711	-2,02798	-2,01895	5,85(9)	6,25(9)	6,67(9)
$8d_{5/2}$	$8g_{7/2}$	1925,30	1852,60	1783,61	-8,28337	-8,25235	-8,22183	1,17134	1,35873	1,5726
$8d_{5/2}$	$9g_{7/2}$	32,62	31,90	31,20	-3,13485	-3,12571	-3,11667	5,74(8)	6,13(8)	6,55(8)
$8d_{5/2}$	$9d_{3/2}$	33,61	32,88	32,17	-3,40843	-3,39977	-3,39122	5,76(8)	6,15(8)	6,55(8)
		34,10809757[b]	33,38464122[b]	32,68449843[b]				6,58(8)[b]	7,03(8)[b]	7,50(8)[b]
$8d_{5/2}$	$8s_{1/2}$	454,29	441,84	429,96	-5,52719	-5,51011	-5,49353	1,60(4)	1,76(4)	1,93(4)
		150,41605099[b]	143,04359311[b]	136,07703962[b]				3,62(6)[b]	4,43(6)[b]	5,42(6)[b]
$8d_{5/2}$	$9s_{1/2}$	34,45	33,70	32,97	-3,08164	-3,07337	-3,06523	2,33(9)	2,48(9)	2,64(9)
		38,95988239[b]	38,29892502[b]	37,66369888[b]				2,63(9)[b]	2,79(9)[b]	2,95(9)[b]
$8f_{5/2}$	$8f_{7/2}$	1761,18	1691,13	1624,69	-8,08154	-8,04785	-8,01463	2,22797	2,61122	3,05407
		1468,90060877[b]	1404,71406369[b]	1343,95216923[b]				5,3868[b]	6,4396[b]	7,6838[b]
$8f_{5/2}$	$9f_{7/2}$	32,58	31,85	31,15	-3,64360	-3,63552	-3,62755	1,79(8)	1,90(8)	2,03(8)
		32,47529431[b]	31,74972646[b]	31,04743787[b]				2,03(8)[b]	2,16(8)[b]	2,31(8)[b]
$8f_{5/2}$	$8p_{3/2}$	1223,94	1183,81	1145,66	-7,42188	-7,39758	-7,37385	2,81(1)	3,18(1)	3,58(1)
		703,7893402[b]	672,36194949[b]	642,62550357[b]				4,32(2)[b]	519,47[b]	622,93[b]
$8f_{5/2}$	$9p_{3/2}$	33,51	32,78	32,07	-3,89493	-3,88749	-3,88019	1,89(8)	2,01(8)	2,14(8)
		34,10809757[b]	33,38464122[b]	30,08189066[b]				2,52(8)[b]	2,69(8)[b]	1,17(9)[b]
$8f_{5/2}$	$8p_{1/2}$	409,57	397,75	386,49	-5,44432	-5,42528	-5,40675	2,38(4)	2,64(4)	2,92(4)
		150,41605099[b]	143,04359311[b]	136,07703962[b]				3,33(6)[b]	4,08(6)[b]	5,00(6)[b]
$8f_{5/2}$	$9p_{1/2}$	34,59	33,84	33,11	-3,29559	-3,28769	-3,27992	1,41(9)	1,50(9)	1,60(9)
		38,95988239[b]	38,29892502[b]	37,66369888[b]				1,77(9)[b]	1,88(9)[b]	1,99(9)[b]

Tablo 3.4. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			A_{ki} (s^{-1})		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$8f_{7/2}$	$9f_{5/2}$	33,59	32,86	32,16	-3,60713	-3,59829	-3,58957	2,43(8)	2,60(8)	2,77(8)
		33,74505392[b]	33,01994055[b]	32,31811257[b]				2,67(8)[b]	2,85(8)[b]	3,05(8)[b]
$8f_{7/2}$	$8p_{3/2}$	722,11	696,35	671,88	-5,95066	-5,92241	-5,89465	1,79(3)	2,06(3)	2,35(3)
		475,81413572[b]	454,71435823[b]	434,74662549[b]				1,41(4)[b]	16879[b]	20216[b]
$8f_{7/2}$	$9p_{3/2}$	34,16	33,43	32,71	-3,06142	-3,05288	-3,04446	1,24(9)	1,32(9)	1,41(9)
		34,91892026[b]	34,19738121[b]	33,49918826[b]				1,52(9)[b]	1,62(9)[b]	1,74(9)[b]
$8g_{7/2}$	$8g_{9/2}$	2700,07	2587,87	2481,55	-8,83315	-8,79704	-8,76135	1,34(-1)	1,59(-1)	1,88(-1)
$8g_{7/2}$	$9g_{9/2}$	32,92	32,19	31,49	-3,79088	-3,78236	-3,77396	9,96(7)	1,06(8)	1,13(8)
$8g_{7/2}$	$9d_{5/2}$	33,55	32,82	32,12	-4,31784	-4,31032	-4,30293	4,75(7)	5,05(7)	5,37(7)
$8g_{7/2}$	$9d_{3/2}$	34,20	33,47	32,76	-3,32348	-3,31530	-3,30724	6,77(8)	7,20(8)	7,66(8)
$8g_{9/2}$	$9g_{7/2}$	33,60	32,87	32,17	-3,76987	-3,76089	-3,75201	1,25(8)	1,34(8)	1,43(8)
$8g_{9/2}$	$9d_{5/2}$	33,97	33,24	32,54	-3,17366	-3,16510	-3,15666	6,46(8)	6,88(8)	7,32(8)
$8p_{1/2}$	$9f_{5/2}$	30,51	29,82	29,15	-2,56507	-2,55662	-2,54826	3,25(9)	3,47(9)	3,70(9)
		27,05409544[b]	26,32445232[b]	25,61786875[b]				3,94(9)[b]	4,21(9)[b]	4,49(9)[b]
$8p_{1/2}$	$8p_{3/2}$	615,54	599,02	583,25	-6,08862	-6,07234	-6,05656	3,59(3)	3,93(3)	4,30(3)
		191,30163191[b]	181,69985599[b]	172,63220073[b]				1,06(6)[b]	1,30(6)[b]	1,60(6)[b]
$8p_{1/2}$	$9p_{3/2}$	30,98	30,28	29,61	-3,16222	-3,15494	-3,14773	1,20(9)	1,27(9)	1,35(9)
		27,80343594[b]	27,06743086[b]	26,3544042[b]				1,52(9)[b]	1,62(9)[b]	1,72(9)[b]
$8p_{3/2}$	$9f_{7/2}$	31,73	31,02	30,33	-2,29713	-2,28849	-2,27995	4,18(9)	4,46(9)	4,76(9)
		31,04286812[b]	30,31807128[b]	29,61656045[b]				4,66(9)[b]	4,99(9)[b]	5,34(9)[b]
$8p_{3/2}$	$9f_{5/2}$	32,10	31,38	30,69	-3,07175	-3,06299	-3,05433	9,15(8)	9,76(8)	1,04(9)
		31,51032106[b]	30,78446834[b]	30,08189066[b]				1,03(9)[b]	1,10(9)[b]	1,17(9)[b]
$8p_{3/2}$	$9p_{1/2}$	33,64	32,90	32,18	-3,03264	-3,02428	-3,01604	2,73(9)	2,91(9)	3,10(9)
		36,91629569[b]	36,23491994[b]	35,57847659[b]				3,04(9)[b]	3,23(9)[b]	3,43(9)[b]

Tablo 3.4. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			A_{ki} (s^{-1})		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$8s_{1/2}$	$9d_{5/2}$	30,74	30,06	29,39	-2,70819	-2,70000	-2,69189	2,30(9)	2,46(9)	2,62(9)
		27,05409544[b]	26,32445232[b]	25,61786875[b]				2,69(9)[b]	2,85(9)[b]	3,03(9)[b]
$8s_{1/2}$	$9d_{3/2}$	31,29	30,60	29,93	-2,86793	-2,85940	-2,85097	2,31(9)	2,46(9)	2,62(9)
		27,80343594[b]	27,06743086[b]	26,3544042[b]				2,87(9)[b]	3,07(9)[b]	3,27(9)[b]
$9d_{3/2}$	$9g_{7/2}$	1112,71	1074,45	1038,06	-6,11903	-6,09185	-6,06517	5,12(2)	5,85(2)	6,66(2)
$9d_{3/2}$	$9d_{5/2}$	1752,40	1693,51	1637,48	-7,38626	-7,36025	-7,33474	1,49(1)	1,69(1)	1,92(1)
		1003,81176962[b]	959,0253949[b]	916,64789065[b]				2,10(2)[b]	251,84[b]	301,79[b]
$9d_{3/2}$	$9s_{1/2}$	1372,61	1347,05	1322,81	-6,67589	-6,66992	-6,66457	1,87(2)	1,97(2)	2,06(2)
		273,88837693[b]	260,17949343[b]	247,23228507[b]				4,69(5)[b]	5,78(5)[b]	7,12(5)[b]
$9d_{5/2}$	$9g_{9/2}$	1754,59	1688,60	1625,95	-6,58072	-6,54931	-6,51838	5,69(1)	6,60(1)	7,65(1)
$9d_{5/2}$	$9g_{7/2}$	3048,25	2939,28	2835,75	-8,39613	-8,36722	-8,33882	3,60(-1)	4,14(-1)	4,75(-1)
$9d_{5/2}$	$9s_{1/2}$	769,71	750,27	731,71	-5,75018	-5,73539	-5,72110	3,34(3)	3,63(3)	3,95(3)
		215,17754151[b]	204,6569398[b]	194,71502079[b]				1,59(6)[b]	1,94(6)[b]	2,37(6)[b]
$9f_{5/2}$	$9f_{7/2}$	2775,80	2670,63	2570,77	-8,21107	-8,17935	-8,14811	6,66(-1)	7,74(-1)	8,97(-1)
		2092,55448415[b]	2001,13978303[b]	1914,6019687[b]				2,43(0)[b]	2,9771[b]	3,5525[b]
$9f_{5/2}$	$9p_{3/2}$	2012,89	1951,67	1893,42	-7,59842	-7,57665	-7,55544	6,91717	7,73617	8,63082
		1003,81176962[b]	959,0253949[b]	916,64789065[b]				198,04[b]	237,88[b]	285,24[b]
$9f_{5/2}$	$9p_{1/2}$	698,87	680,31	662,60	-5,66359	-5,64700	-5,63090	4,94(3)	5,41(3)	5,92(3)
		215,17754151[b]	204,6569398[b]	194,71502079[b]				1,49(6)[b]	1,83(6)[b]	2,24(6)[b]
$9f_{7/2}$	$9p_{3/2}$	1166,79	1127,62	1090,35	-6,11188	-6,08590	-6,06041	4,73(2)	5,38(2)	6,10(2)
		678,38577468[b]	648,32323716[b]	619,87318083[b]				6,44(3)[b]	7722,7[b]	9248,2[b]
$9g_{7/2}$	$9g_{9/2}$	4134,34	3968,47	3811,17	-8,91474	-8,88009	-8,84589	4,75(-2)	5,58(-2)	6,55(-2)
$9p_{1/2}$	$9p_{3/2}$	1070,56	1044,34	1019,30	-6,33817	-6,32438	-6,31108	6,68(2)	7,24(2)	7,84(2)
		273,88837693[b]	260,17949343[b]	247,23228507[b]				4,62(5)[b]	5,68(5)[b]	6,98(5)[b]

Tablo 3.5. Hidrojen benzeri protaktinyum, uranyum ve neptünyumun manyetik dipol (M1) geçiş parametreleri

Geçişler		Dalga Boyu (Å)			log(*gf*)			A_{ki} (s^{-1})		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$2p_{1/2}$	$2p_{3/2}$	3,51	3,35	3,20	-2,8186	-2,7987	-2,7791	2,05(11)	2,36(11)	2,70(11)
		2,86295501[a]	2,71559504[a]	2,57649453[a]				3,43(11)[a]	4,00(11)[a]	4,66(11)[a]
$2p_{1/2}$	$3p_{3/2}$	0,63	0,62	0,60	-4,1764	-4,1491	-4,1222	2,76(11)	3,10(11)	3,47(11)
		0,61039999[a]	0,59299717[a]	0,57613571[a]				3,36(11)[a]	3,84(11)[a]	4,39(11)[a]
$2p_{1/2}$	$4p_{3/2}$	0,49	0,48	0,47	-4,7267	-4,7002	-4,6741	1,30(11)	1,45(11)	1,62(11)
		0,4764854[a]	0,46351993[a]	0,45095402[a]				1,66(11)[a]	1,89(11)[a]	2,16(11)[a]
$2p_{1/2}$	$5p_{3/2}$	0,44	0,43	0,42	-5,1127	-5,0872	-5,0620	6,50(10)	7,26(10)	8,09(10)
		0,4325136[a]	0,4209285[a]	0,40969992[a]				8,94(10)[a]	1,02(11)[a]	1,16(11)[a]
$2p_{1/2}$	$6p_{3/2}$	0,42	0,41	0,40	-5,4180	-5,3932	-5,3688	3,56(10)	3,97(10)	4,41(10)
		0,41191756[a]	0,40096736[a]	0,39035399[a]				5,30(10)[a]	6,05(10)[a]	6,90(10)[a]
$2p_{1/2}$	$7p_{3/2}$	0,41	0,40	0,39	-5,6760	-5,6520	-5,6284	2,08(10)	2,31(10)	2,57(10)
		0,40045607[a]	0,3898564[a]	0,37958273[a]				3,38(10)[a]	3,86(10)[a]	4,40(10)[a]
$2p_{1/2}$	$8p_{3/2}$	0,40	0,39	0,38	-5,9075	-5,8843	-5,8615	1,27(10)	1,41(10)	1,56(10)
		0,39337373[b]	0,38298985[b]	0,37292528[b]				2,28(10)[b]	2,60(10)[b]	2,97(10)[b]
$2p_{1/2}$	$9p_{3/2}$	0,40	0,39	0,38	-6,1377	-6,1156	-6,0939	7,64(9)	8,46(9)	9,35(9)
		0,38867386[b]	0,37843289[b]	0,36850682[b]				1,61(10)[b]	1,83(10)[b]	2,09(10)[b]
$2p_{3/2}$	$3p_{1/2}$	0,82	0,80	0,78	-4,2425	-4,2170	-4,1919	2,86(11)	3,17(11)	3,50(11)
		0,65186043[a]	0,82764688[a]	0,81183353[a]				4,50(10)[a]	8,28(11)[a]	9,30(11)[a]
$2p_{3/2}$	$4p_{1/2}$	0,58	0,57	0,55	-4,9027	-4,8799	-4,8574	1,25(11)	1,37(11)	1,51(11)
		0,48655138[a]	0,57359165[a]	0,56142507[a]				3,32(10)[a]	4,82(11)[a]	5,41(11)[a]
$2p_{3/2}$	$5p_{1/2}$	0,51	0,50	0,49	-5,3414	-5,3200	-5,2990	5,80(10)	6,37(10)	6,99(10)
		0,43666056[a]	0,50395018[a]	0,49301871[a]				2,05(10)[a]	2,72(11)[a]	3,05(11)[a]

[a,b] Jitrik ve Bunge, 2004.

Tablo 3.5. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			A_{ki} (s^{-1})		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$2p_{3/2}$	$6p_{1/2}$	0,48	0,47	0,46	-5,6816	-5,6613	-5,6413	2,99(10)	3,27(10)	3,58(10)
		0,41406281[a]	0,47337783[a]	0,46302646[a]				1,29(10)[a]	1,64(11)[a]	1,84(11)[a]
$2p_{3/2}$	$7p_{1/2}$	0,47	0,46	0,45	-5,9677	-5,9483	-5,9292	1,65(10)	1,81(10)	1,98(10)
		0,40171979[a]	0,45692739[a]	0,44689953[a]				8,48(9)[a]	1,05(11)[a]	1,18(11)[a]
$2p_{3/2}$	$8p_{1/2}$	0,46	0,45	0,44	-6,2258	-6,2073	-6,1890	9,52(9)	1,04(10)	1,13(10)
		0,39418429[b]	0,44696967[b]	0,43714214[b]				5,82(9)[b]	7,12(10)[b]	7,98(10)[b]
$2p_{3/2}$	$9p_{1/2}$	0,45	0,44	0,43	-6,4882	-6,4706	-6,4534	5,36(9)	5,83(9)	6,35(9)
		0,38922621[b]	0,44045305[b]	0,43075876[b]				4,15(9)[b]	5,02(10)[b]	5,63(10)[b]
$3d_{3/2}$	$3d_{5/2}$	37,58	35,92	34,34	-3,5886	-3,5689	-3,5495	2,03(8)	2,33(8)	2,66(8)
		37,32707188[a]	35,66474239[a]	34,09174475[a]				2,02(8)[a]	2,31(8)[a]	2,64(8)[a]
$3d_{3/2}$	$4d_{5/2}$	2,12	2,07	2,02	-5,3392	-5,3103	-5,2817	1,13(9)	1,27(9)	1,42(9)
		2,11936528[a]	2,07039613[a]	2,02299707[a]				7,05(8)[a]	7,91(8)[a]	8,86(8)[a]
$3d_{3/2}$	$5d_{5/2}$	1,47	1,44	1,41	-5,8500	-5,8215	-5,7933	7,26(8)	8,11(8)	9,06(8)
		1,47135868[a]	1,43786904[a]	1,40545252[a]				4,16(8)[a]	4,66(8)[a]	5,22(8)[a]
$3d_{3/2}$	$6d_{5/2}$	1,26	1,23	1,20	-6,1988	-6,1708	-6,1432	4,42(8)	4,94(8)	5,51(8)
		1,26138332[a]	1,23280484[a]	1,20514209[a]				2,52(8)[a]	2,82(8)[a]	3,16(8)[a]
$3d_{3/2}$	$7d_{5/2}$	1,16	1,13	1,11	-6,4741	-6,4467	-6,4197	2,77(8)	3,09(8)	3,44(8)
		1,16142985[a]	1,1351735[a]	1,10975848[a]				1,62(8)[a]	1,81(8)[a]	2,03(8)[a]
$3d_{3/2}$	$8d_{5/2}$	1,10	1,08	1,06	-6,7099	-6,6832	-6,6569	1,78(8)	1,98(8)	2,20(8)
		1,10465179[b]	1,07971084[b]	1,05556908[b]				1,10(8)[b]	1,23(8)[b]	1,38(8)[b]
$3d_{3/2}$	$9d_{5/2}$	1,07	1,04	1,02	-6,9331	-6,9074	-6,8820	1,14(8)	1,26(8)	1,40(8)
		1,06885865[b]	1,04474593[b]	1,02140585[b]				7,75(7)[b]	8,68(7)[b]	9,72(7)[b]

Tablo 3.5. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			A_{ki} (s^{-1})		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$3d_{5/2}$	$4d_{3/2}$	2,30	2,25	2,20	-5,3558	-5,3273	-5,2992	1,39(9)	1,55(9)	1,72(9)
		2,30606038[a]	2,25725001[a]	2,21001228[a]				2,31(9)[a]	2,59(9)[a]	2,89(9)[a]
$3d_{5/2}$	$5d_{3/2}$	1,54	1,51	1,48	-5,9082	-5,8811	-5,8544	8,66(8)	9,63(8)	1,07(9)
		1,54558113[a]	1,5121437[a]	1,47978015[a]				1,73(9)[a]	1,93(9)[a]	2,16(9)[a]
$3d_{5/2}$	$6d_{3/2}$	1,31	1,28	1,25	-6,2809	-6,2548	-6,2291	5,09(8)	5,65(8)	6,27(8)
		1,31128623[a]	1,28274035[a]	1,25511065[a]				1,16(9)[a]	1,30(9)[a]	1,45(9)[a]
$3d_{5/2}$	$7d_{3/2}$	1,20	1,17	1,15	-6,5749	-6,5497	-6,5249	3,08(8)	3,41(8)	3,77(8)
		1,20178934[a]	1,1755586[a]	1,15016954[a]				7,86(8)[a]	8,79(8)[a]	9,81(8)[a]
$3d_{5/2}$	$8d_{3/2}$	1,14	1,11	1,09	-6,8285	-6,8042	-6,7803	1,91(8)	2,11(8)	2,33(8)
		1,14018382[b]	1,11526522[b]	1,09114611[b]				5,50(8)[b]	6,15(8)[b]	6,86(8)[b]
$3d_{5/2}$	$9d_{3/2}$	1,10	1,08	1,05	-7,0742	-7,0510	-7,0283	1,16(8)	1,28(8)	1,41(8)
		1,10157515[b]	1,07748299[b]	1,05416377[b]				3,97(8)[b]	4,44(8)[b]	4,95(8)[b]
$3p_{1/2}$	$3p_{3/2}$	15,20	14,60	14,03	-3,4573	-3,4401	-3,4232	2,52(9)	2,84(9)	3,19(9)
		9,59699342[a]	9,10245245[a]	8,63570469[a]				9,34(9)[a]	1,09(10)[a]	1,27(10)[a]
$3p_{1/2}$	$4p_{3/2}$	1,90	1,85	1,81	-4,8014	-4,7789	-4,7568	7,30(9)	8,08(9)	8,93(9)
		1,7710729[a]	1,72141826[a]	1,67331224[a]				1,81(10)[a]	2,07(10)[a]	2,36(10)[a]
$3p_{1/2}$	$5p_{3/2}$	1,35	1,32	1,29	-5,2918	-5,2701	-5,2488	4,66(9)	5,14(9)	5,66(9)
		1,28535475[a]	1,25123214[a]	1,21816481[a]				1,21(10)[a]	1,38(10)[a]	1,57(10)[a]
$3p_{1/2}$	$6p_{3/2}$	1,17	1,14	1,12	-5,6382	-5,6173	-5,5967	2,80(9)	3,09(9)	3,39(9)
		1,11906955[a]	1,08994154[a]	1,06171379[a]				7,78(9)[a]	8,86(9)[a]	1,01(10)[a]
$3p_{1/2}$	$7p_{3/2}$	1,08	1,06	1,03	-5,9175	-5,8974	-5,8776	1,72(9)	1,89(9)	2,08(9)
		1,03833308[a]	1,01157359[a]	0,98564122[a]				5,18(9)[a]	5,89(9)[a]	6,70(9)[a]

Tablo 3.5. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			A_{ki} (s^{-1})		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$3p_{1/2}$	$8p_{3/2}$	1,03	1,01	0,98	-6,1617	-6,1423	-6,1233	1,08(9)	1,18(9)	1,30(9)
		0,99202308[b]	0,96660654[b]	0,94197573[b]				3,58(9)[b]	4,08(9)[b]	4,64(9)[b]
$3p_{1/2}$	$9p_{3/2}$	1,00	0,98	0,95	-6,4001	-6,3817	-6,3638	6,63(8)	7,25(8)	7,93(8)
		0,96266728[b]	0,93809661[b]	0,9142856[b]				2,57(9)[b]	2,92(9)[b]	3,32(9)[b]
$3p_{3/2}$	$4p_{1/2}$	2,28	2,23	2,19	-4,8022	-4,7798	-4,7577	1,01(10)	1,11(10)	1,22(10)
		2,39801612[a]	2,3513074[a]	2,30625355[a]				3,31(10)[a]	3,73(10)[a]	4,20(10)[a]
$3p_{3/2}$	$5p_{1/2}$	1,51	1,47	1,44	-5,3701	-5,3493	-5,3290	6,26(9)	6,87(9)	7,54(9)
		1,53412267[a]	1,50101047[a]	1,46898387[a]				2,61(10)[a]	2,94(10)[a]	3,31(10)[a]
$3p_{3/2}$	$6p_{1/2}$	1,28	1,25	1,22	-5,7574	-5,7377	-5,7185	3,58(9)	3,92(9)	4,29(9)
		1,28729531[a]	1,25885571[a]	1,23133625[a]				1,77(10)[a]	1,99(10)[a]	2,25(10)[a]
$3p_{3/2}$	$7p_{1/2}$	1,17	1,14	1,12	-6,0671	-6,0483	-6,0299	2,09(9)	2,28(9)	2,49(9)
		1,17505039[a]	1,1488624[a]	1,12351787[a]				1,21(10)[a]	1,36(10)[a]	1,53(10)[a]
$3p_{3/2}$	$8p_{1/2}$	1,11	1,08	1,06	-6,3389	-6,3210	-6,3035	1,24(9)	1,35(9)	1,47(9)
		1,11282434[b]	1,08792262[b]	1,0638213[b]				8,44(9)[b]	9,51(9)[b]	1,07(10)[b]
$3p_{3/2}$	$9p_{1/2}$	1,07	1,05	1,02	-6,6102	-6,5933	-6,5767	7,12(8)	7,75(8)	8,42(8)
		1,07419454[b]	1,05010658[b]	1,02679204[b]				6,09(9)[b]	6,86(9)[b]	7,71(9)[b]
$4d_{3/2}$	$4d_{5/2}$	95,28	91,22	87,37	-3,9931	-3,9742	-3,9556	1,24(7)	1,42(7)	1,61(7)
		87,64870372[a]	83,72741872[a]	80,01727281[a]				1,57(7)[a]	1,80(7)[a]	2,07(7)[a]
$4d_{3/2}$	$5d_{5/2}$	4,58	4,47	4,37	-5,6666	-5,6394	-5,6126	1,14(8)	1,27(8)	1,42(8)
		4,56175793[a]	4,45597469[a]	4,35358381[a]				1,05(8)[a]	1,17(8)[a]	1,32(8)[a]
$4d_{3/2}$	$6d_{5/2}$	3,02	2,95	2,88	-6,1287	-6,1020	-6,0756	9,09(7)	1,01(8)	1,13(8)
		3,00887414[a]	2,94028954[a]	2,87390275[a]				7,98(7)[a]	8,95(7)[a]	1,00(8)[a]

Tablo 3.5. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			A_{ki} (s^{-1})		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$4d_{3/2}$	$7d_{5/2}$	2,50	2,44	2,39	-6,4487	-6,4225	-6,3967	6,32(7)	7,03(7)	7,81(7)
		2,49639604[a]	2,43981724[a]	2,3850514[a]				5,61(7)[a]	6,29(7)[a]	7,05(7)[a]
$4d_{3/2}$	$8d_{5/2}$	2,25	2,20	2,15	-6,7078	-6,6823	-6,6572	4,30(7)	4,77(7)	5,29(7)
		2,24803744[b]	2,19723208[b]	2,1480547[b]				3,98(7)[b]	4,47(7)[b]	5,00(7)[b]
$4d_{3/2}$	$9d_{5/2}$	2,11	2,06	2,01	-6,9451	-6,9205	-6,8963	2,84(7)	3,14(7)	3,48(7)
		2,10461094[b]	2,05712776[b]	2,01116612[b]				2,90(7)[b]	3,25(7)[b]	3,64(7)[b]
$4d_{5/2}$	$5d_{3/2}$	4,93	4,82	4,72	-5,6678	-5,6407	-5,6139	1,48(8)	1,64(8)	1,82(8)
		4,95155753[a]	4,84608007[a]	4,74399993[a]				2,49(8)[a]	2,79(8)[a]	3,11(8)[a]
$4d_{5/2}$	$6d_{3/2}$	3,14	3,07	3,01	-6,1651	-6,1392	-6,1136	1,16(8)	1,28(8)	1,42(8)
		3,14900295[a]	3,08051984[a]	3,01423601[a]				2,31(8)[a]	2,58(8)[a]	2,89(8)[a]
$4d_{5/2}$	$7d_{3/2}$	2,58	2,52	2,47	-6,5067	-6,4817	-6,4571	7,81(7)	8,65(7)	9,56(7)
		2,58368948[a]	2,52717368[a]	2,47247173[a]				1,78(8)[a]	1,99(8)[a]	2,22(8)[a]
$4d_{5/2}$	$8d_{3/2}$	2,31	2,26	2,21	-6,7849	-6,7609	-6,7371	5,12(7)	5,66(7)	6,25(7)
		2,31480202[b]	2,26404545[b]	2,21491754[b]				1,33(8)[b]	1,49(8)[b]	1,66(8)[b]
$4d_{5/2}$	$9d_{3/2}$	2,16	2,11	2,06	-7,0453	-7,0224	-6,9998	3,23(7)	3,55(7)	3,91(7)
		2,16103227[b]	2,113591[b]	2,06767186[b]				1,00(8)[b]	1,12(8)[b]	1,25(8)[b]
$4f_{5/2}$	$4f_{7/2}$	183,20	175,19	167,61	-4,1212	-4,1018	-4,0826	1,88(6)	2,15(6)	2,45(6)
		184,89911407[a]	176,84723948[a]	169,22436224[a]				1,80(6)[a]	2,06(6)[a]	2,35(6)[a]
$4f_{5/2}$	$5f_{7/2}$	4,75	4,64	4,54	-6,1805	-6,1515	-6,1229	2,44(7)	2,73(7)	3,05(7)
		4,74860013[a]	4,64284472[a]	4,54048215[a]				1,30(7)[a]	1,45(7)[a]	1,62(7)[a]
$4f_{5/2}$	$6f_{7/2}$	3,10	3,03	2,96	-6,6853	-6,6566	-6,6282	1,79(7)	2,00(7)	2,23(7)
		3,10024878[a]	3,0317133[a]	2,9653763[a]				8,15(6)[a]	9,11(6)[a]	1,02(7)[a]

Tablo 3.5. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			A_{ki} (s^{-1})		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$4f_{5/2}$	$7f_{7/2}$	2,56	2,51	2,45	-7,0232	-6,9948	-6,9668	1,20(7)	1,34(7)	1,50(7)
		2,56288822[a]	2,50635231[a]	2,45162997[a]				5,19(6)[a]	5,80(6)[a]	6,48(6)[a]
$4f_{5/2}$	$8f_{7/2}$	2,30	2,25	2,20	-7,2888	-7,2610	-7,2335	8,09(6)	9,01(6)	1,00(7)
		2,3035952[b]	2,25282851[b]	2,20369033[b]				3,47(6)[b]	3,88(6)[b]	4,33(6)[b]
$4f_{5/2}$	$9f_{7/2}$	2,15	2,11	2,06	-7,5233	-7,4962	-7,4695	5,39(6)	6,00(6)	6,67(6)
		2,15417005[b]	2,1067229[b]	2,06079778[b]				2,43(6)[b]	2,71(6)[b]	3,03(6)[b]
$4f_{7/2}$	$5f_{5/2}$	4,94	4,83	4,73	-6,1884	-6,1596	-6,1311	2,95(7)	3,30(7)	3,67(7)
		4,94080423[a]	4,83512992[a]	4,73284951[a]				4,81(7)[a]	5,37(7)[a]	5,99(7)[a]
$4f_{7/2}$	$6f_{5/2}$	3,17	3,10	3,03	-6,7142	-6,6861	-6,6584	2,14(7)	2,38(7)	2,65(7)
		3,16924373[a]	3,10073247[a]	3,03442[a]				4,07(7)[a]	4,54(7)[a]	5,06(7)[a]
$4f_{7/2}$	$7f_{5/2}$	2,60	2,55	2,49	-7,0653	-7,0379	-7,0109	1,41(7)	1,57(7)	1,74(7)
		2,60579577[a]	2,54927332[a]	2,4945646[a]				2,98(7)[a]	3,33(7)[a]	3,71(7)[a]
$4f_{7/2}$	$8f_{5/2}$	2,34	2,28	2,24	-7,3430	-7,3163	-7,2900	9,26(6)	1,03(7)	1,14(7)
		2,3363672[b]	2,2856101[b]	2,23648164[b]				2,16(7)[b]	2,42(7)[b]	2,69(7)[b]
$4f_{7/2}$	$9f_{5/2}$	2,18	2,13	2,09	-7,5927	-7,5671	-7,5418	5,97(6)	6,62(6)	7,33(6)
		2,18183564[b]	2,13439627[b]	2,08847903[b]				1,59(7)[b]	1,78(7)[b]	1,98(7)[b]
$4p_{1/2}$	$4p_{3/2}$	43,82	42,27	40,79	-3,9160	-3,9005	-3,8853	1,05(8)	1,17(8)	1,31(8)
		23,03148606[a]	21,85289249[a]	20,74038267[a]				6,82(8)[a]	7,95(8)[a]	9,27(8)[a]
$4p_{1/2}$	$5p_{3/2}$	4,24	4,14	4,04	-5,2752	-5,2556	-5,2363	4,92(8)	5,40(8)	5,93(8)
		3,89431363[a]	3,78706974[a]	3,68317338[a]				1,87(9)[a]	2,13(9)[a]	2,43(9)[a]
$4p_{1/2}$	$6p_{3/2}$	2,85	2,78	2,72	-5,7319	-5,7129	-5,6943	3,81(8)	4,18(8)	4,57(8)
		2,68536514[a]	2,61557858[a]	2,54795607[a]				1,51(9)[a]	1,72(9)[a]	1,95(9)[a]

Tablo 3.5. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			A_{ki} (s^{-1})		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$4p_{1/2}$	$7p_{3/2}$	2,38	2,32	2,27	-6,0557	-6,0374	-6,0195	2,59(8)	2,83(8)	3,09(8)
		2,26310179[a]	2,20554335[a]	2,14977027[a]				1,10(9)[a]	1,25(9)[a]	1,42(9)[a]
$4p_{1/2}$	$8p_{3/2}$	2,15	2,10	2,05	-6,3233	-6,3058	-6,2887	1,71(8)	1,87(8)	2,04(8)
		2,05410348[b]	2,00243778[b]	1,95237572[b]				8,02(8)[b]	9,11(8)[b]	1,03(9)[b]
$4p_{1/2}$	$9p_{3/2}$	2,02	1,97	1,93	-6,5759	-6,5595	-6,5435	1,09(8)	1,18(8)	1,29(8)
		1,93210647[b]	1,88383347[b]	1,83705959[b]				5,92(8)[b]	6,72(8)[b]	7,63(8)[b]
$4p_{3/2}$	$5p_{1/2}$	4,92	4,82	4,71	-5,2581	-5,2382	-5,2186	7,59(8)	8,31(8)	9,08(8)
		5,22443769[a]	5,12394752[a]	5,02704846[a]				3,18(9)[a]	3,58(9)[a]	4,03(9)[a]
$4p_{3/2}$	$6p_{1/2}$	3,09	3,02	2,96	-5,7762	-5,7575	-5,7391	5,84(8)	6,37(8)	6,95(8)
		3,16063286[a]	3,09294571[a]	3,02748598[a]				3,02(9)[a]	3,40(9)[a]	3,83(9)[a]
$4p_{3/2}$	$7p_{1/2}$	2,53	2,48	2,42	-6,1352	-6,1174	-6,1000	3,81(8)	4,15(8)	4,52(8)
		2,56018264[a]	2,50394109[a]	2,44952324[a]				2,32(9)[a]	2,62(9)[a]	2,95(9)[a]
$4p_{3/2}$	$8p_{1/2}$	2,27	2,22	2,17	-6,4325	-6,4155	-6,3989	2,39(8)	2,60(8)	2,83(8)
		2,28214516[b]	2,23150935[b]	2,18250683[b]				1,73(9)[b]	1,95(9)[b]	2,20(9)[b]
$4p_{3/2}$	$9p_{1/2}$	2,12	2,07	2,02	-6,7188	-6,7029	-6,6873	1,42(8)	1,54(8)	1,67(8)
		2,12539907[b]	2,07801512[b]	2,03215578[b]				1,30(9)[b]	1,46(9)[b]	1,64(9)[b]
$5d_{3/2}$	$5d_{5/2}$	201,34	193,10	185,30	-4,3181	-4,3000	-4,2821	1,32(6)	1,49(6)	1,69(6)
		171,00159877[a]	163,34730709[a]	156,10525339[a]				2,13(6)[a]	2,44(6)[a]	2,80(6)[a]
$5d_{3/2}$	$6d_{5/2}$	8,46	8,27	8,08	-5,9785	-5,9529	-5,9276	1,63(7)	1,81(7)	2,01(7)
		8,40446391[a]	8,20972947[a]	8,02124013[a]				1,96(7)[a]	2,20(7)[a]	2,47(7)[a]
$5d_{3/2}$	$7d_{5/2}$	5,37	5,24	5,13	-6,4151	-6,3900	-6,3653	1,48(7)	1,65(7)	1,82(7)
		5,34154853[a]	5,21999952[a]	5,10234565[a]				1,76(7)[a]	1,98(7)[a]	2,21(7)[a]

Tablo 3.5. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			A_{ki} (s^{-1})		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$5d_{3/2}$	$8d_{5/2}$	4,34	4,24	4,14	-6,7210	-6,6966	-6,6725	1,12(7)	1,24(7)	1,38(7)
		4,32027754[b]	4,22257725[b]	4,12800772[b]				1,38(7)[b]	1,55(7)[b]	1,73(7)[b]
$5d_{3/2}$	$9d_{5/2}$	3,83	3,75	3,66	-6,9832	-6,9596	-6,9364	7,87(6)	8,69(6)	9,59(6)
		3,81998161[b]	3,73386767[b]	3,65051324[b]				1,06(7)[b]	1,18(7)[b]	1,33(7)[b]
$5d_{5/2}$	$6d_{3/2}$	9,05	8,85	8,66	-5,9735	-5,9478	-5,9225	2,17(7)	2,40(7)	2,66(7)
		9,1110961[a]	8,91692673[a]	8,72901162[a]				3,93(7)[a]	4,40(7)[a]	4,92(7)[a]
$5d_{5/2}$	$7d_{3/2}$	5,56	5,44	5,32	-6,4417	-6,4171	-6,3928	1,95(7)	2,16(7)	2,38(7)
		5,57914729[a]	5,45777978[a]	5,34031006[a]				4,16(7)[a]	4,65(7)[a]	5,20(7)[a]
$5d_{5/2}$	$8d_{3/2}$	4,45	4,35	4,26	-6,7692	-6,7456	-6,7222	1,43(7)	1,58(7)	1,74(7)
		4,46034642[b]	4,36275482[b]	4,26829552[b]				3,52(7)[b]	3,94(7)[b]	4,40(7)[b]
$5d_{5/2}$	$9d_{3/2}$	3,92	3,83	3,75	-7,0555	-7,0329	-7,0108	9,57(6)	1,05(7)	1,16(7)
		3,92253367[b]	3,8365012[b]	3,75322939[b]				2,83(7)[b]	3,16(7)[b]	3,54(7)[b]
$5f_{5/2}$	$5f_{7/2}$	367,74	351,90	336,90	-4,4239	-4,4048	-4,3859	2,32(5)	2,65(5)	3,02(5)
		359,21812205[a]	343,53419253[a]	328,68678874[a]				2,47(5)[a]	2,82(5)[a]	3,22(5)[a]
$5f_{5/2}$	$6f_{7/2}$	8,72	8,52	8,33	-6,3722	-6,3441	-6,3163	4,66(6)	5,20(6)	5,80(6)
		8,71458137[a]	8,51990359[a]	8,33147179[a]				3,32(6)[a]	3,71(6)[a]	4,15(6)[a]
$5f_{5/2}$	$7f_{7/2}$	5,48	5,36	5,24	-6,8264	-6,7986	-6,7711	4,14(6)	4,61(6)	5,14(6)
		5,4830503[a]	5,36158724[a]	5,24402053[a]				2,66(6)[a]	2,97(6)[a]	3,32(6)[a]
$5f_{5/2}$	$8f_{7/2}$	4,42	4,32	4,23	-7,1378	-7,1105	-7,0835	3,11(6)	3,46(6)	3,85(6)
		4,41892283[b]	4,32129418[b]	4,22679728[b]				1,94(6)[b]	2,17(6)[b]	2,43(6)[b]
$5f_{5/2}$	$9f_{7/2}$	3,90	3,81	3,73	-7,3964	-7,3698	-7,3436	2,20(6)	2,45(6)	2,72(6)
		3,89998335[b]	3,81393198[b]	3,73064098[b]				1,43(6)[b]	1,59(6)[b]	1,78(6)[b]

Tablo 3.5. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			A_{ki} (s^{-1})		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$5f_{7/2}$	$6f_{5/2}$	9,05	8,86	8,67	-6,3739	-6,3458	-6,3180	5,74(6)	6,39(6)	7,12(6)
		9,06185627[a]	8,86730393[a]	8,67899926[a]				8,90(6)[a]	9,94(6)[a]	1,11(7)[a]
$5f_{7/2}$	$7f_{5/2}$	5,59	5,47	5,36	-6,8475	-6,8202	-6,7932	5,05(6)	5,62(6)	6,24(6)
		5,59973415[a]	5,4783097[a]	5,36078209[a]				9,14(6)[a]	1,02(7)[a]	1,14(7)[a]
$5f_{7/2}$	$8f_{5/2}$	4,48	4,39	4,29	-7,1727	-7,1462	-7,1199	3,71(6)	4,13(6)	4,58(6)
		4,48762762[b]	4,3900209[b]	4,29554621[b]				7,60(6)[b]	8,49(6)[b]	9,47(6)[b]
$5f_{7/2}$	$9f_{5/2}$	3,95	3,86	3,78	-7,4474	-7,4218	-7,3965	2,55(6)	2,82(6)	3,13(6)
		3,95023272[b]	3,86419716[b]	3,78092218[b]				6,02(6)[b]	6,73(6)[b]	7,50(6)[b]
$5g_{7/2}$	$5g_{9/2}$	605,73	579,44	554,56	-4,5278	-4,5085	-4,4894	5,39(4)	6,16(4)	7,03(4)
		611,3089238[a]	584,89477544[a]	559,88363726[a]				51998[a]	59353[a]	67654[a]
$5g_{7/2}$	$6g_{9/2}$	8,85	8,66	8,47	-6,8370	-6,8081	-6,7795	1,24(6)	1,38(6)	1,54(6)
		8,85613842[a]	8,66146516[a]	8,47303795[a]				6,12(5)[a]	6,84(5)[a]	7,63(5)[a]
$5g_{7/2}$	$7g_{9/2}$	5,55	5,43	5,31	-7,3511	-7,3224	-7,2940	9,65(5)	1,08(6)	1,20(6)
		5,54953601[a]	5,42808732[a]	5,31053516[a]				3,89(5)[a]	4,35(5)[a]	4,85(5)[a]
$5g_{7/2}$	$8g_{9/2}$	4,46	4,37	4,27	-7,6922	-7,6638	-7,6358	6,80(5)	7,58(5)	8,45(5)
$5g_{7/2}$	$9g_{9/2}$	3,94	3,85	3,77[a]	-7,9640	-7,9363	-7,9089	4,67(5)	5,21(5)	5,79(5)
$5g_{9/2}$	$6g_{7/2}$	9,06	8,87	8,68	-6,8420	-6,8133	-6,7848	1,46(6)	1,63(6)	1,82(6)
		9,06367299[a]	8,86905433[a]	8,6806824[a]				2,43(6)[a]	2,71(6)[a]	3,02(6)[a]
$5g_{9/2}$	$7g_{7/2}$	5,62	5,50	5,38	-7,3691	-7,3408	-7,3128	1,13(6)	1,26(6)	1,40(6)
		5,61922208[a]	5,49778891[a]	5,38025245[a]				2,18(6)[a]	2,44(6)[a]	2,72(6)[a]
$5g_{9/2}$	$8g_{7/2}$	4,51	4,41	4,31	-7,7193	-7,6915	-7,6641	7,84(5)	8,73(5)	9,71(5)
$5g_{9/2}$	$9g_{7/2}$	3,97	3,88	3,80	-8,0021	-7,9751	-7,9485	5,27(5)	5,86(5)	6,51(5)

Tablo 3.5. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			A_{ki} (s^{-1})		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$5p_{1/2}$	$5p_{3/2}$	100,04	96,76	93,65	-4,2734	-4,2590	-4,2449	8,88(6)	9,81(6)	1,08(7)
		45,54215484[a]	43,22672499[a]	41,04079159[a]				8,86(7)[a]	1,03(8)[a]	1,20(8)[a]
$5p_{1/2}$	$6p_{3/2}$	7,98	7,80	7,62	-5,6567	-5,6390	-5,6217	5,77(7)	6,30(7)	6,87(7)
		7,26945705[a]	7,07203456[a]	6,88077608[a]				3,01(8)[a]	3,42(8)[a]	3,89(8)[a]
$5p_{1/2}$	$7p_{3/2}$	5,14	5,02	4,91	-6,0937	-6,0767	-6,0600	5,09(7)	5,54(7)	6,03(7)
		4,82988103[a]	4,70631532[a]	4,5865883[a]				2,77(8)[a]	3,15(8)[a]	3,57(8)[a]
$5p_{1/2}$	$8p_{3/2}$	4,18	4,08	3,99	-6,4075	-6,3912	-6,3753	3,74(7)	4,06(7)	4,41(7)
		3,96820027[b]	3,8689399[b]	3,77276636[b]				2,22(8)[b]	2,52(8)[b]	2,85(8)[b]
$5p_{1/2}$	$9p_{3/2}$	3,70	3,62	3,54	-6,6848	-6,6696	-6,6548	2,51(7)	2,72(7)	2,95(7)
		3,53678274[b]	3,44934727[b]	3,36463391[b]				1,73(8)[b]	1,96(8)[b]	2,22(8)[b]
$5p_{3/2}$	$6p_{1/2}$	9,07	8,87	8,68	-5,6352	-5,6172	-5,5996	9,39(7)	1,02(8)	1,11(8)
		9,70624124[a]	9,52194954[a]	9,34429432[a]				4,92(8)[a]	5,54(8)[a]	6,23(8)[a]
$5p_{3/2}$	$7p_{1/2}$	5,50	5,38	5,26	-6,1253	-6,1083	-6,0917	8,26(7)	8,98(7)	9,76(7)
		5,64234436[a]	5,52258721[a]	5,40678419[a]				5,30(8)[a]	5,98(8)[a]	6,74(8)[a]
$5p_{3/2}$	$8p_{1/2}$	4,39	4,29	4,20	-6,4729	-6,4568	-6,4410	5,82(7)	6,32(7)	6,85(7)
		4,44803481[b]	4,35101716[b]	4,25715189[b]				4,48(8)[b]	5,05(8)[b]	5,69(8)[b]
$5p_{3/2}$	$9p_{1/2}$	3,86	3,77	3,69	-6,7856	-6,7705	-6,7558	3,67(7)	3,97(7)	4,30(7)
		3,88902225[b]	3,80325626[b]	3,72026061[b]				3,58(8)[b]	4,03(8)[b]	4,54(8)[b]
$6d_{3/2}$	$6d_{5/2}$	376,68	361,90	347,87	-4,5900	-4,5727	-4,5556	2,01(5)	2,27(5)	2,56(5)
		295,83945395[a]	282,60512732[a]	270,08339525[a]				4,12(5)[a]	4,73(5)[a]	5,41(5)[a]
$6d_{3/2}$	$7d_{5/2}$	14,11	13,79	13,48	-6,2579	-6,2338	-6,2100	3,08(6)	3,41(6)	3,77(6)
		13,96502702[a]	13,64206007[a]	13,32945029[a]				4,64(6)[a]	5,21(6)[a]	5,84(6)[a]

Tablo 3.5. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			A_{ki} (s^{-1})		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$6d_{3/2}$	$8d_{5/2}$	8,69	8,49	8,30	-6,6822	-6,6586	-6,6354	3,06(6)	3,38(6)	3,73(6)
		8,63092518[b]	8,43497445[b]	8,24530322[b]				4,68(6)[b]	5,25(6)[b]	5,88(6)[b]
$6d_{3/2}$	$9d_{5/2}$	6,87	6,72	6,57	-6,9923	-6,9696	-6,9473	2,39(6)	2,64(6)	2,91(6)
		6,84101271[b]	6,68669896[b]	6,53733027[b]				3,97(6)[b]	4,45(6)[b]	4,98(6)[b]
$6d_{5/2}$	$7d_{3/2}$	14,99	14,67	14,36	-6,2512	-6,2269	-6,2030	4,16(6)	4,60(6)	5,07(6)
		15,12805063[a]	14,80605829[a]	14,49443888[a]				8,41(6)[a]	9,41(6)[a]	1,05(7)[a]
$6d_{5/2}$	$8d_{3/2}$	8,96	8,77	8,58	-6,7060	-6,6828	-6,6599	4,08(6)	4,50(6)	4,96(6)
		9,00403306[b]	8,80838384[b]	8,61901853[b]				9,73(6)[b]	1,09(7)[b]	1,22(7)[b]
$6d_{5/2}$	$9d_{3/2}$	7,03	6,88	6,73	-7,0424	-7,0204	-6,9987	3,06(6)	3,37(6)	3,70(6)
		7,05214772[b]	6,89800781[b]	6,74881545[b]				8,84(6)[b]	9,89(6)[b]	1,11(7)[b]
$6f_{5/2}$	$6f_{7/2}$	662,42	634,51	608,06	-4,6796	-4,6609	-4,6424	3,97(4)	4,52(4)	5,14(4)
		619,68809702[a]	592,60939752[a]	566,97547249[a]				48227[a]	55135[a]	62944[a]
$6f_{5/2}$	$7f_{7/2}$	14,46	14,14	13,82	-6,5976	-6,5704	-6,5436	1,01(6)	1,12(6)	1,25(6)
		14,4417378[a]	14,11887661[a]	13,8063742[a]				8,92(5)[a]	9,98(5)[a]	1,11(6)[a]
$6f_{5/2}$	$8f_{7/2}$	8,84	8,65	8,46	-7,0282	-7,0015	-6,9751	9,99(5)	1,11(6)	1,23(6)
		8,83681034[b]	8,64099696[b]	8,451465[b]				8,33(5)[b]	9,31(5)[b]	1,04(6)[b]
$6f_{5/2}$	$9f_{7/2}$	6,98	6,83	6,68	-7,3345	-7,3085	-7,2828	7,92(5)	8,79(5)	9,75(5)
		6,97959149[b]	6,82538728[b]	6,67612967[b]				6,73(5)[b]	7,52(5)[b]	8,40(5)[b]
$6f_{7/2}$	$7f_{5/2}$	14,98	14,66	14,35	-6,5967	-6,5695	-6,5426	1,25(6)	1,39(6)	1,55(6)
		15,01196639[a]	14,68930211[a]	14,37699926[a]				1,96(6)[a]	2,19(6)[a]	2,45(6)[a]
$6f_{7/2}$	$8f_{5/2}$	9,01	8,81	8,62	-7,0466	-7,0203	-6,9942	1,23(6)	1,37(6)	1,52(6)
		9,01969391[b]	8,82394105[b]	8,63447038[b]				2,26(6)[b]	2,52(6)[b]	2,82(6)[b]

Tablo 3.5. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			A_{ki} (s^{-1})		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$6f_{7/2}$	$9f_{5/2}$	7,07	6,92	6,77	-7,3704	-7,3450	-7,3200	9,47(5)	1,05(6)	1,16(6)
		7,08299265[b]	6,92882258[b]	6,77959953[b]				2,04(6)[b]	2,28(6)[b]	2,55(6)[b]
$6g_{7/2}$	$6g_{9/2}$	1062,36	1016,62	973,31	-4,7718	-4,7527	-4,7338	1,00(4)	1,14(4)	1,30(4)
		1053,01988031[a]	1007,44904141[a]	964,30026811[a]				10200[a]	11646[a]	13279[a]
$6g_{7/2}$	$7g_{9/2}$	14,66	14,33	14,02	-6,9471	-6,9187	-6,8907	3,51(5)	3,91(5)	4,36(5)
		14,65655364[a]	14,33370079[a]	14,02120683[a]				2,23(5)[a]	2,49(5)[a]	2,77(5)[a]
$6g_{7/2}$	$8g_{9/2}$	8,93	8,74	8,55	-7,4054	-7,3774	-7,3496	3,29(5)	3,67(5)	4,08(5)
$6g_{7/2}$	$9g_{9/2}$	7,04	6,89	6,74	-7,7234	-7,6959	-7,6688	2,54(5)	2,83(5)	3,15(5)
$6g_{9/2}$	$7g_{7/2}$	14,99	14,67	14,35	-6,9491	-6,9208	-6,8928	4,17(5)	4,65(5)	5,18(5)
		14,99691522[a]	14,67413732[a]	14,36171927[a]				6,52(5)[a]	7,28(5)[a]	8,11(5)[a]
$6g_{9/2}$	$8g_{7/2}$	9,04	8,84	8,65	-7,4204	-7,3927	-7,3654	3,88(5)	4,32(5)	4,80(5)
$6g_{9/2}$	$9g_{7/2}$	7,10	6,95	6,80	-7,7505	-7,7236	-7,6970	2,94(5)	3,26(5)	3,62(5)
$6p_{1/2}$	$6p_{3/2}$	197,93	191,87	186,10	-4,5687	-4,5553	-4,5421	1,15(6)	1,26(6)	1,38(6)
		79,50589682[a]	75,4849337[a]	71,68836719[a]				1,67(7)[a]	1,94(7)[a]	2,26(7)[a]
$6p_{1/2}$	$7p_{3/2}$	13,46	13,15	12,85	-5,9832	-5,9671	-5,9514	9,57(6)	1,04(7)	1,13(7)
		12,18616584[a]	11,85872416[a]	11,54150645[a]				6,55(7)[a]	7,44(7)[a]	8,44(7)[a]
$6p_{1/2}$	$8p_{3/2}$	8,40	8,21	8,02	-6,4121	-6,3968	-6,3819	9,16(6)	9,93(6)	1,08(7)
			7,67374978[b]	7,48086867[b]					7,53(7)[b]	8,53(7)[b]
$6p_{1/2}$	$9p_{3/2}$	6,68	6,53	6,38	-6,7367	-6,7224	-6,7085	6,86(6)	7,42(6)	8,01(6)
			6,18216713[b]	6,03041831[b]					6,47(7)[b]	7,32(7)[b]
$6p_{3/2}$	$7p_{1/2}$	15,05	14,72	14,40	-5,9627	-5,9464	-5,9305	1,60(7)	1,74(7)	1,89(7)
		16,22662271[a]	15,92195338[a]	15,62832553[a]				1,05(8)[a]	1,18(8)[a]	1,32(8)[a]

Tablo 3.5. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			A_{ki} (s^{-1})		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$6p_{3/2}$	$8p_{1/2}$	8,89	8,70	8,51	-6,4412	-6,4259	-6,4109	1,53(7)	1,65(7)	1,79(7)
		9,15631788[b]	8,96353491[b]	8,77713536[b]				1,24(8)[b]	1,40(8)[b]	1,57(8)[b]
$6p_{3/2}$	$9p_{1/2}$	6,96	6,80	6,65	-6,8050	-6,7906	-6,7767	1,08(7)	1,17(7)	1,26(7)
		7,06564665[b]	6,9125508[b]	6,76443842[b]				1,12(8)[b]	1,27(8)[b]	1,43(8)[b]
$7d_{3/2}$	$7d_{5/2}$	649,75	625,28	602,06	-4,8267	-4,8100	-4,7936	3,92(4)	4,40(4)	4,93(4)
		470,61699657[a]	449,5826294[a]	429,68043706[a]				1,03(5)[a]	1,18(5)[a]	1,35(5)[a]
$7d_{3/2}$	$8d_{5/2}$	21,84	21,35	20,87	-6,5160	-6,4933	-6,4709	7,11(5)	7,84(5)	8,63(5)
		21,56108632[b]	21,06346134[b]	20,58179386[b]				1,32(6)[b]	1,49(6)[b]	1,66(6)[b]
$7d_{3/2}$	$9d_{5/2}$	13,14	12,84	12,56	-6,9456	-6,9237	-6,9023	7,30(5)	8,03(5)	8,83(5)
		13,03872659[b]	12,74336692[b]	12,45747253[b]				1,45(6)[b]	1,63(6)[b]	1,83(6)[b]
$7d_{5/2}$	$8d_{3/2}$	23,09	22,59	22,10	-6,5107	-6,4879	-6,4655	9,65(5)	1,06(6)	1,17(6)
		23,34588428[b]	22,84983168[b]	22,36976194[b]				2,25(6)[b]	2,52(6)[b]	2,81(6)[b]
$7d_{5/2}$	$9d_{3/2}$	13,51	13,22	12,93	-6,9747	-6,9532	-6,9321	9,68(5)	1,06(6)	1,17(6)
		13,59184418[b]	13,29695525[b]	13,01153846[b]				2,78(6)[b]	3,11(6)[b]	3,48(6)[b]
$7f_{5/2}$	$7f_{7/2}$	1106,60	1061,16	1018,09	-4,9024	-4,8842	-4,8662	8,52(3)	9,67(3)	1,09(4)
		983,76376033[a]	940,77003572[a]	900,07035907[a]				12074[a]	13804[a]	15760[a]
$7f_{5/2}$	$8f_{7/2}$	22,30	21,81	21,33	-6,8189	-6,7928	-6,7671	2,54(5)	2,83(5)	3,13(5)
		22,25398932[b]	21,7565445[b]	21,27505988[b]				2,73(5)[b]	3,05(5)[b]	3,41(5)[b]
$7f_{5/2}$	$9f_{7/2}$	13,34	13,04	12,76	-7,2459	-7,2205	-7,1955	2,66(5)	2,95(5)	3,27(5)
		13,32487279[b]	13,02971882[b]	12,74403297[b]				2,83(5)[b]	3,17(5)[b]	3,54(5)[b]
$7f_{7/2}$	$8f_{5/2}$	23,06	22,56	22,08	-6,8179	-6,7918	-6,7660	3,18(5)	3,53(5)	3,91(5)
		23,12754857[b]	22,63040756[b]	22,14923085[b]				5,28(5)[b]	5,90(5)[b]	6,58(5)[b]

Tablo 3.5. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			A_{ki} (s^{-1})		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$7f_{7/2}$	$9f_{5/2}$	13,57	13,27	12,99	-7,2675	-7,2425	-7,2178	3,26(5)	3,61(5)	3,99(5)
		13,59559568[b]	13,30053372[b]	13,01494106[b]				6,55(5)[b]	7,32(5)[b]	8,17(5)[b]
$7g_{7/2}$	$7g_{9/2}$	1734,85	1661,23	1591,50	-4,9848	-4,9660	-4,9473	2,30(3)	2,61(3)	2,97(3)
		1669,91089064[a]	1597,59535952[a]	1529,12439798[a]				2561,8[a]	2925,4[a]	3335,8[a]
$7g_{7/2}$	$8g_{9/2}$	22,57	22,07	21,59	-7,1188	-7,0912	-7,0639	9,96(4)	1,11(5)	1,24(5)
$7g_{7/2}$	$9g_{9/2}$	13,46	13,16	12,88	-7,5570	-7,5299	-7,5031	1,02(5)	1,14(5)	1,26(5)
$7g_{9/2}$	$8g_{7/2}$	23,06	22,56	22,08	-7,1199	-7,0923	-7,0651	1,19(5)	1,32(5)	1,47(5)
$7g_{9/2}$	$9g_{7/2}$	13,61	13,31	13,02	-7,5736	-7,5469	-7,5205	1,20(5)[a]	1,34(5)[a]	1,48(5)[a]
$7p_{1/2}$	$7p_{3/2}$	357,83	347,55	337,75	-4,8250	-4,8124	-4,8000	1,95(5)	2,13(5)	2,32(5)
		127,29993943[a]	120,88883227[a]	114,8348747[a]				4,07(6)[a]	4,74(6)[a]	5,50(6)[a]
$7p_{1/2}$	$8p_{3/2}$	21,01	20,54	20,08	-6,2811	-6,2666	-6,2525	1,98(6)	2,14(6)	2,31(6)
		18,93421719[b]	18,42966486[b]	17,94086597[b]				1,77(7)[b]	2,01(7)[b]	2,28(7)[b]
$7p_{1/2}$	$9p_{3/2}$	12,78	12,49	12,22	-6,7223	-6,7089	-6,6958	1,94(6)	2,09(6)	2,25(6)
		11,96832702[b]	11,66840251[b]	11,37781603[b]				1,93(7)[b]	2,19(7)[b]	2,48(7)[b]
$7p_{3/2}$	$8p_{1/2}$	23,16	22,65	22,16	-6,2655	-6,2508	-6,2365	3,37(6)	3,65(6)	3,94(6)
		25,16886694[b]	24,70068814[b]	24,24956595[b]				2,79(7)[b]	3,14(7)[b]	3,53(7)[b]
$7p_{3/2}$	$9p_{1/2}$	13,42	13,12	12,83	-6,7598	-6,7462	-6,7330	3,22(6)	3,47(6)	3,75(6)
		13,87977432[b]	13,58954678[b]	13,30895233[b]				3,55(7)[b]	4,00(7)[b]	4,50(7)[b]
$8d_{3/2}$	$8d_{5/2}$	1067,39	1029,05	992,61	-5,0421	-5,0262	-5,0106	8,86(3)	9,88(3)	1,10(4)
		703,7893402[b]	672,36194949[b]	642,62550357[b]				30692[b]	35189[b]	40290[b]
$8d_{3/2}$	$9d_{5/2}$	31,99	31,27	30,58	-6,7761	-6,7552	-6,7346	1,82(5)	2,00(5)	2,19(5)
		31,51032106[b]	30,78446834[b]	30,08189066[b]				4,38(5)[b]	4,91(5)[b]	5,50(5)[b]

Tablo 3.5. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			A_{ki} (s^{-1})		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$8d_{5/2}$	$9d_{3/2}$	33,61	32,88	32,17	-6,7778	-6,7568	-6,7362	2,46(5)	2,70(5)	2,96(5)
		34,10809757[b]	33,38464122[b]	32,68449843[b]				7,11(5)[b]	7,96(5)[b]	8,89(5)[b]
$8f_{5/2}$	$8f_{7/2}$	1761,18	1691,13	1624,69	-5,1042	-5,0866	-5,0692	2,11(3)	2,39(3)	2,69(3)
		1468,90060877[b]	1404,71406369[b]	1343,95216923[b]				3630,7[b]	4150,9[b]	4739,2[b]
$8f_{5/2}$	$9f_{7/2}$	32,58	31,85	31,15	-7,0443	-7,0196	-6,9952	7,10(4)	7,86(4)	8,69(4)
		32,47529431[b]	31,74972646[b]	31,04743787[b]				93984[b]	1,05(5)[b]	1,17(5)[b]
$8f_{7/2}$	$9f_{5/2}$	33,59	32,86	32,16	-7,0473	-7,0226	-6,9983	8,84(4)	9,77(4)	1,08(5)
		33,74505392[b]	33,01994055[b]	32,31811257[b]				1,67(5)[b]	1,86(5)[b]	2,08(5)[b]
$8g_{7/2}$	$8g_{9/2}$	2700,07	2587,87	2481,55	-5,1769	-5,1585	-5,1403	6,09(2)	6,91(2)	7,84(2)
$8g_{7/2}$	$9g_{9/2}$	32,92	32,19	31,49	-7,3094	-7,2829	-7,2566	3,02(4)	3,36(4)	3,72(4)
$8g_{9/2}$	$9g_{7/2}$	33,60	32,87	32,17	-7,3128	-7,2863	-7,2601	3,59(4)	3,99(4)	4,43(4)
$8p_{1/2}$	$8p_{3/2}$	615,54	599,02	583,25	-5,0597	-5,0479	-5,0364	3,84(4)	4,16(4)	4,51(4)
		191,30163191[b]	181,699856	172,63220073[b]				1,20(6)[b]	1,40(6)[b]	1,62(6)[b]
$8p_{1/2}$	$9p_{3/2}$	30,98	30,28[b]	29,61	-6,5840	-6,5713	-6,5590	4,53(5)	4,88(5)	5,25(5)
		27,80343594[b]	27,06743086	26,3544042[b]				5,65(6)[b]	6,41(6)[b]	7,26(6)[b]
$8p_{3/2}$	$9p_{1/2}$	33,64	32,9[b]	32,18	-6,5805	-6,5676	-6,5551	7,74(5)	8,34(5)	8,97(5)
		36,91629569[b]	#BAŞV!	35,57847659[b]				8,83(6)[b]	9,93(6)[b]	1,11(7)[b]
$9d_{3/2}$	$9d_{5/2}$	1752,40	1693,51	1637,48	-5,2570	-5,2422	-5,2276	2,00(3)	2,22(3)	2,45(3)
		1003,81176962[b]	959,0253949[b]	916,64789065[b]				10585[b]	12135[b]	13893[b]
$9f_{5/2}$	$9f_{7/2}$	2775,80	2670,63	2570,77	-5,3017	-5,2849	-5,2683	5,40(2)	6,07(2)	6,80(2)
		2092,55448415[b]	2001,13978303[b]	1914,6019687[b]				1256,7[b]	1436,8[b]	1640,4[b]
$9g_{7/2}$	$9g_{9/2}$	4134,34	3968,47	3811,17	-5,3619	-5,3441	-5,3265	1,70(2)	1,92(2)	2,17(2)

Tablo 3.5. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			A_{ki} (s^{-1})		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$9p_{1/2}$	$9p_{3/2}$	1070,56	1044,34	1019,30	-5,2990	-5,2883	-5,2777	7,31(3)	7,87(3)	8,47(3)
		273,88837693[b]	260,17949343[b]	247,23228507[b]				4,10(5)[b]	4,76(5)[b]	5,53(5)[b]

Tablo 3.6. Hidrojen benzeri protaktinyum, uranyum ve neptünyumun manyetik kuadrupol (M2) geçiş parametreleri

Geçişler		Dalga Boyu (Å)			log(*gf*)			$A_{ki}(s^{-1})$		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$1s_{1/2}$	$2p_{3/2}$	0,13	0,12	0,12	-2,63233	-2,61606	-2,60007	2,38(14)	2,60(14)	2,83(14)
		0,12405183[a]	0,12080714[a]	0,11766227[a]				2,55(14)[a]	2,80(14)[a]	3,06(14)[a]
									2,80(14)[d]	
									2,82(14)[c]	
$1s_{1/2}$	$3p_{3/2}$	0,11	0,11	0,10	-3,39358	-3,38386	-3,37465	5,59(13)	6,01(13)	6,44(13)
		0,10695042[a]	0,10421268[a]	0,10155914[a]				9,27(13)[a]	1,01(14)[a]	1,11(14)[a]
$1s_{1/2}$	$4p_{3/2}$	0,10	0,1	0,10	-4,14025	-4,14688	-4,15499	1,11(13)	1,14(13)	1,18(13)
		0,10193101[a]	0,09933626[a]	0,09682137[a]				4,12(13)[a]	4,51(13)[a]	4,93(13)[a]
$1s_{1/2}$	$5p_{3/2}$	0,10	0,1	0,10	-5,31651	-5,41152	-5,52645	7,70(11)	6,50(11)	5,24(11)
		0,09976134[a]	0,0972279[a]	0,09477247[a]				2,15(13)[a]	2,35(13)[a]	2,57(13)[a]
$1s_{1/2}$	$6p_{3/2}$	0,10	0,1	0,10	-5,32714	-5,19693	-5,07814	7,70(11)	1,09(12)	1,50(12)
		0,09862393[a]	0,09612259[a]	0,09369828[a]				1,25(13)[a]	1,37(13)[a]	1,50(13)[a]
$1s_{1/2}$	$7p_{3/2}$	0,10	0,1	0,10	-4,42662	-4,36095	-4,29730	6,21(12)	7,58(12)	9,21(12)
		0,09795269[a]	0,09547032[a]	0,09306439[a]				7,92(12)[a]	8,66(12)[a]	9,47(12)[a]
$1s_{1/2}$	$8p_{3/2}$	0,10	0,1	0,10	-3,90205	-3,85134	-3,80149	2,10(13)	2,47(13)	2,91(13)
		0,09752321[b]	0,09505298[b]	0,09265883[b]				5,31(12)[b]	5,81(12)[b]	6,35(12)[b]
$1s_{1/2}$	$9p_{3/2}$	0,10	0,1	0,09	-3,29489	-3,25194	-3,20950	8,53(13)	9,89(13)	1,14(14)
		0,09723173[b]	0,09476976[b]	0,09238361[b]				3,73(12)[b]	4,08(12)[b]	4,46(12)[b]
$2s_{1/2}$	$2p_{3/2}$	4,28	4,1	3,94	-5,76464	-5,72073	-5,67740	1,57(8)	1,88(8)	2,26(8)
		2,86295501[a]	2,71559504[a]	2,57649453[a]				1,00(9)[a]	1,27(9)[a]	1,61(9)[a]
$2s_{1/2}$	$3p_{3/2}$	0,66	0,64	0,62	-4,10752	-4,09151	-4,07574	3,02(11)	3,30(11)	3,60(11)
		0,61039999[a]	0,59299717[a]	0,57613571[a]				3,54(11)[a]	3,88(11)[a]	4,24(11)[a]

[a,b] Jitrik ve Bunge, 2004, [c] Surzhykov ve ark. 2002, [d] Chen ve ark., 2014.

Tablo 3.6. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			$A_{ki}(s^{-1})$		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$2s_{1/2}$	$4p_{3/2}$	0,50	0,49	0,48	-4,58979	-4,57757	-4,56571	1,69(11)	1,83(11)	1,97(11)
		0,4764854[a]	0,46351993[a]	0,45095402[a]				2,81(11)[a]	3,08(11)[a]	3,37(11)[a]
$2s_{1/2}$	$5p_{3/2}$	0,46	0,44	0,43	-5,12067	-5,11710	-5,11420	6,10(10)	6,46(10)	6,83(10)
		0,4325136[a]	0,4209285[a]	0,40969992[a]				1,80(11)[a]	1,98(11)[a]	2,16(11)[a]
$2s_{1/2}$	$6p_{3/2}$	0,43	0,42	0,41	-5,86755	-5,89209	-5,91960	1,21(10)	1,20(10)	1,18(10)
		0,41191756[a]	0,40096736[a]	0,39035399[a]				1,16(11)[a]	1,27(11)[a]	1,40(11)[a]
$2s_{1/2}$	$7p_{3/2}$	0,42	0,41	0,40	-7,60453	-7,27563	-7,02722	2,35(8)	5,27(8)	9,80(8)
		0,40045607[a]	0,3898564[a]	0,37958273[a]				7,77(10)[a]	8,52(10)[a]	9,33(10)[a]
$2s_{1/2}$	$8p_{3/2}$	0,41	0,4	0,39	-5,56309	-5,50030	-5,43948	2,69(10)	3,26(10)	3,93(10)
		0,39337373[b]	0,38298985[b]	0,37292528[b]				5,40(10)[b]	5,92(10)[b]	6,48(10)[b]
$2s_{1/2}$	$9p_{3/2}$	0,41	0,4	0,39	-4,67229	-4,62892	-4,58629	2,14(11)	2,49(11)	2,88(11)
		0,38867386[b]	0,37843289[b]	0,36850682[b]				3,89(10)[b]	4,26(10)[b]	4,66(10)[b]
$3d_{3/2}$	$4f_{7/2}$	2,10	2,05	2,00	-4,41389	-4,39416	-4,37463	7,32(9)	8,03(9)	8,80(9)
		2,09534782[a]	2,04643795[a]	1,99909879[a]				7,07(9)[a]	7,75(9)[a]	8,49(9)[a]
$3d_{3/2}$	$5f_{7/2}$	1,47	1,43	1,40	-4,87459	-4,85444	-4,83449	5,18(9)	5,69(9)	6,23(9)
		1,46535657[a]	1,43187589[a]	1,39946845[a]				5,04(9)[a]	5,53(9)[a]	6,06(9)[a]
$3d_{3/2}$	$6f_{7/2}$	1,26	1,23	1,20	-5,21145	-5,19162	-5,17199	3,23(9)	3,54(9)	3,88(9)
		1,25882097[a]	1,23024556[a]	1,20258592[a]				3,29(9)[a]	3,61(9)[a]	3,95(9)[a]
$3d_{3/2}$	$7f_{7/2}$	1,16	1,13	1,11	-5,49850	-5,47959	-5,46091	1,97(9)	2,15(9)	2,35(9)
		1,16006028[a]	1,13380541[a]	1,10839187[a]				2,20(9)[a]	2,41(9)[a]	2,64(9)[a]
$3d_{3/2}$	$8f_{7/2}$	1,10	1,08	1,05	-5,78955	-5,77286	-5,75642	1,11(9)	1,21(9)	1,31(9)
		1,10382168[b]	1,07888158[b]	1,05474067[b]				1,52(9)[b]	1,67(9)[b]	1,83(9)[b]

Tablo 3.6. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			$A_{ki}(s^{-1})$		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$3d_{3/2}$	$9f_{7/2}$	1,07	1,04	1,02	-6,27874	-6,27173	-6,26530	3,85(8)	4,09(8)	4,34(8)
		1,06831297[b]	1,04420078[b]	1,02086124[b]				1,09(9)[b]	1,20(9)[b]	1,31(9)[b]
$3d_{3/2}$	$4f_{5/2}$	2,12	2,07	2,02	-4,65489	-4,63534	-4,61599	5,48(9)	6,00(9)	6,57(9)
		2,11936528[a]	2,07039613[a]	2,02299707[a]				5,28(9)[a]	5,78(9)[a]	6,32(9)[a]
$3d_{3/2}$	$5f_{5/2}$	1,47	1,44	1,41	-5,13973	-5,12031	-5,10110	3,72(9)	4,08(9)	4,46(9)
		1,47135868[a]	1,43786904[a]	1,40545252[a]				3,66(9)[a]	4,00(9)[a]	4,38(9)[a]
$3d_{3/2}$	$6f_{5/2}$	1,26	1,23	1,21	-5,49259	-5,47388	-5,45538	2,25(9)	2,46(9)	2,68(9)
		1,26138332[a]	1,23280484[a]	1,20514209[a]				2,35(9)[a]	2,57(9)[a]	2,81(9)[a]
$3d_{3/2}$	$7f_{5/2}$	1,16	1,14	1,11	-5,79448	-5,77707	-5,75990	1,32(9)	1,44(9)	1,57(9)
		1,16142985[a]	1,1351735[a]	1,10975848[a]				1,55(9)[a]	1,70(9)[a]	1,86(9)[a]
$3d_{3/2}$	$8f_{5/2}$	1,10	1,08	1,06	-6,10457	-6,08996	-6,07565	7,16(8)	7,75(8)	8,38(8)
		1,10465179[b]	1,07971084[b]	1,05556908[b]				1,07(9)[b]	1,17(9)[b]	1,28(9)[b]
$3d_{3/2}$	$9f_{5/2}$	1,07	1,04	1,02	-6,64326	-6,64085	-6,63920	2,21(8)	2,33(8)	2,45(8)
		1,06885865[b]	1,04474593[b]	1,02140585[b]				7,64(8)[b]	8,36(8)[b]	9,14(8)[b]
$3d_{3/2}$	$2p_{1/2}$	0,64	0,62	0,60	-4,94384	-4,92365	-4,90366	4,70(10)	5,19(10)	5,73(10)
		0,61039999[a]	0,59299717[a]	0,57613571[a]				4,68(10)[a]	5,19(10)[a]	5,74(10)[a]
$3d_{3/2}$	$3p_{1/2}$	15,58	14,98	14,42	-8,25365	-8,21229	-8,17156	3,83(4)	4,56(4)	5,41(4)
		9,59699342[a]	9,10245245[a]	8,63570469[a]				3,84(5)[a]	4,88(5)[a]	6,18(5)[a]
$3d_{3/2}$	$4p_{1/2}$	2,28	2,23	2,18	-7,28159	-7,26158	-7,24187	3,37(7)	3,69(7)	4,03(7)
		2,39801612[a]	2,3513074[a]	2,30625355[a]				5,81(7)[a]	6,44(7)[a]	7,14(7)[a]
$3d_{3/2}$	$5p_{1/2}$	1,50	1,47	1,44	-7,99303	-7,98322	-7,97400	1,50(7)	1,61(7)	1,72(7)
		1,53412267[a]	1,50101047[a]	1,46898387[a]				5,84(7)[a]	6,49(7)[a]	7,21(7)[a]

Tablo 3.6. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			$A_{ki}(s^{-1})$		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$3d_{3/2}$	$6p_{1/2}$	1,27	1,24	1,22	-9,13577	-9,17837	-9,22725	1,51(6)	1,43(6)	1,34(6)
		1,28729531[a]	1,25885571[a]	1,23133625[a]				4,29(7)[a]	4,77(7)[a]	5,30(7)[a]
$3d_{3/2}$	$7p_{1/2}$	1,17	1,14	1,12	-9,10274	-9,00881	-8,91989	1,93(6)	2,51(6)	3,23(6)
		1,17505039[a]	1,1488624[a]	1,12351787[a]				3,03(7)[a]	3,37(7)[a]	3,75(7)[a]
$3d_{3/2}$	$8p_{1/2}$	1,11	1,08	1,06	-8,13673	-8,08379	-8,03188	1,98(7)	2,35(7)	2,77(7)
		1,11282434[b]	1,08792262[b]	1,0638213[b]				2,17(7)[b]	2,41(7)[b]	2,68(7)[b]
$3d_{3/2}$	$9p_{1/2}$	1,07	1,05	1,02	-7,44603	-7,40318	-7,36084	1,04(8)	1,20(8)	1,39(8)
		1,07419454[b]	1,05010658[b]	1,02679204[b]				1,59(7)[b]	1,76(7)[b]	1,96(7)[b]
$3d_{5/2}$	$4f_{7/2}$	2,22	2,17	2,12	-3,60825	-3,58923	-3,57041	4,17(10)	4,56(10)	4,97(10)
		2,21996513[a]	2,17101021[a]	2,12362564[a]				4,05(10)[a]	4,42(10)[a]	4,82(10)[a]
$3d_{5/2}$	$5f_{7/2}$	1,52	1,49	1,46	-4,09701	-4,07815	-4,05950	2,87(10)	3,13(10)	3,42(10)
		1,52523296[a]	1,49176771[a]	1,45937593[a]				2,79(10)[a]	3,04(10)[a]	3,32(10)[a]
$3d_{5/2}$	$6f_{7/2}$	1,30	1,27	1,25	-4,44016	-4,42172	-4,40350	1,78(10)	1,95(10)	2,12(10)
		1,30275518[a]	1,2741987[a]	1,24655825[a]				1,78(10)[a]	1,95(10)[a]	2,12(10)[a]
$3d_{5/2}$	$7f_{7/2}$	1,20	1,17	1,15	-4,71911	-4,70137	-4,68385	1,11(10)	1,21(10)	1,32(10)
		1,19726932[a]	1,17103332[a]	1,14563892[a]				1,18(10)[a]	1,28(10)[a]	1,40(10)[a]
$3d_{5/2}$	$8f_{7/2}$	1,14	1,11	1,09	-4,97668	-4,96023	-4,94403	6,80(9)	7,39(9)	8,01(9)
		1,13745816[b]	1,11253653[b]	1,08841436[b]				8,10(9)[b]	8,83(9)[b]	9,62(9)[b]
$3d_{5/2}$	$9f_{7/2}$	1,10	1,08	1,05	-5,30192	-5,28943	-5,27728	3,44(9)	3,70(9)	3,98(9)
		1,0997893[b]	1,07569524[b]	1,05237409[b]				5,78(9)[b]	6,30(9)[b]	6,87(9)[b]
$3d_{5/2}$	$2p_{3/2}$	0,76	0,74	0,73	-3,24713	-3,22826	-3,20961	1,09(12)	1,19(12)	1,30(12)
		0,76001081[a]	0,74286249[a]	0,72626359[a]				1,04(12)[a]	1,14(12)[a]	1,24(12)[a]

Tablo 3.6. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			$A_{ki}(s^{-1})$		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$3d_{5/2}$	$3p_{3/2}$	40,05	38,34	36,71	-7,71524	-7,66805	-7,62138	1,34(4)	1,62(4)	1,97(4)
		37,32707188[a]	35,66474239[a]	34,09174475[a]				18426[a]	22606[a]	27680[a]
$3d_{5/2}$	$4p_{3/2}$	2,30	2,25	2,20	-5,61989	-5,59915	-5,57863	7,59(8)	8,31(8)	9,10(8)
		2,30606038[a]	2,25725001[a]	2,21001228[a]				9,13(8)[a]	1,00(9)[a]	1,10(9)[a]
$3d_{5/2}$	$5p_{3/2}$	1,54	1,51	1,48	-6,12521	-6,10810	-6,09127	5,26(8)	5,72(8)	6,21(8)
		1,54558113[a]	1,5121437[a]	1,47978015[a]				8,76(8)[a]	9,65(8)[a]	1,06(9)[a]
$3d_{5/2}$	$6p_{3/2}$	1,31	1,28	1,25	-6,64975	-6,64008	-6,63091	2,18(8)	2,33(8)	2,49(8)
		1,31128623[a]	1,28274035[a]	1,25511065[a]				6,40(8)[a]	7,05(8)[a]	7,76(8)[a]
$3d_{5/2}$	$7p_{3/2}$	1,20	1,17	1,15	-7,42260	-7,43906	-7,45773	4,37(7)	4,40(7)	4,41(7)
		1,20178934[a]	1,1755586[a]	1,15016954[a]				4,53(8)[a]	4,99(8)[a]	5,49(8)[a]
$3d_{5/2}$	$8p_{3/2}$	1,14	1,11	1,09	-8,32898	-8,17942	-8,04560	6,03(6)	8,89(6)	1,26(7)
		1,14018382[b]	1,11526522[b]	1,09114611[b]				3,24(8)[b]	3,57(8)[b]	3,93(8)[b]
$3d_{5/2}$	$9p_{3/2}$	1,10	1,08	1,05	-6,61127	-6,56124	-6,51212	3,37(8)	3,95(8)	4,62(8)
		1,10157515[b]	1,07748299[b]	1,05416377[b]				2,38(8)[b]	2,62(8)[b]	2,88(8)[b]
$3d_{5/2}$	$2p_{1/2}$	0,62	0,61	0,59	-3,90793	-3,88760	-3,86747	3,52(11)	3,89(11)	4,30(11)
		0,60057888[a]	0,58329867[a]	0,56656107[a]				3,61(11)[a]	4,00(11)[a]	4,44(11)[a]
$3d_{5/2}$	$3p_{1/2}$	11,02	10,57	10,15	-6,75430	-6,71036	-6,66701	1,61(6)	1,94(6)	2,32(6)
		7,63419923[a]	7,25166325[a]	6,89033031[a]				9,50(6)[a]	1,20(7)[a]	1,51(7)[a]
$3d_{5/2}$	$4p_{1/2}$	2,42	2,37	2,32	-6,10930	-6,08657	-6,06411	4,42(8)	4,85(8)	5,33(8)
		2,56264929[a]	2,51726586[a]	2,47358792[a]				6,27(8)[a]	6,92(8)[a]	7,64(8)[a]
$3d_{5/2}$	$5p_{1/2}$	1,57	1,53	1,50	-6,64072	-6,62154	-6,60268	3,11(8)	3,40(8)	3,70(8)
		1,59987675[a]	1,56695855[a]	1,53513135[a]				6,48(8)[a]	7,18(8)[a]	7,95(8)[a]

Tablo 3.6. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			$A_{ki}(s^{-1})$		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$3d_{5/2}$	$6p_{1/2}$	1,32	1,29	1,26	-7,15307	-7,13967	-7,12671	1,35(8)	1,46(8)	1,57(8)
		1,33327588[a]	1,3049152[a]	1,27747655[a]				4,80(8)[a]	5,33(8)[a]	5,90(8)[a]
$3d_{5/2}$	$7p_{1/2}$	1,20	1,18	1,15	-7,81751	-7,81989	-7,82337	3,50(7)	3,64(7)	3,77(7)
		1,2132431[a]	1,18710233[a]	1,16180602[a]				3,41(8)[a]	3,78(8)[a]	4,18(8)[a]
$3d_{5/2}$	$9p_{1/2}$	1,10	1,08	1,05	-7,49525	-7,44262	-7,39101	8,78(7)	1,04(8)	1,22(8)
		1,14702022[b]	1,08196373[b]	1,05867782[b]				2,44(8)[b]	1,98(8)[b]	2,19(8)[b]
$3s_{1/2}$	$2p_{3/2}$	0,81	0,79	0,77	-4,83588	-4,81591	-4,79624	7,44(10)	8,14(10)	8,89(10)
		0,84403766[b]	0,82764688[b]					1,27(11)[b]	1,40(11)[b]	
$3s_{1/2}$	$3p_{3/2}$	18,57	17,92	17,29	-6,89335	-6,85658	-6,82046	6,18(5)	7,23(5)	8,43(5)
		9,59699342[a]	9,10245245[a]	8,63570469[a]				1,50(7)[a]	1,90(7)[a]	2,40(7)[a]
$3s_{1/2}$	$4p_{3/2}$	1,94	1,9	1,85	-4,98106	-4,96421	-4,94756	4,61(9)	5,03(9)	5,48(9)
		1,7710729[a]	1,72141826[a]	1,67331224[a]				4,58(9)[a]	4,96(9)[a]	5,36(9)[a]
$3s_{1/2}$	$5p_{3/2}$	1,37	1,34	1,31	-5,33245	-5,31791	-5,30361	4,10(9)	4,45(9)	4,82(9)
		1,28535475[a]	1,25123214[a]	1,21816481[a]				5,44(9)[a]	5,90(9)[a]	6,40(9)[a]
$3s_{1/2}$	$6p_{3/2}$	1,19	1,16	1,13	-5,73929	-5,72957	-5,72017	2,16(9)	2,31(9)	2,48(9)
		1,11906955[a]	1,08994154[a]	1,06171379[a]				4,41(9)[a]	4,79(9)[a]	5,20(9)[a]
$3s_{1/2}$	$7p_{3/2}$	1,10	1,07	1,05	-6,30143	-6,30484	-6,30910	6,93(8)	7,21(8)	7,48(8)
		1,03833308[a]	1,01157359[a]	0,98564122[a]				3,31(9)[a]	3,60(9)[a]	3,91(9)[a]
$3s_{1/2}$	$8p_{3/2}$	1,05	1,02	1,00	-8,48074	-8,91725	-9,91833	5,05(6)	1,94(6)	2,02(5)
		0,99202308[b]	0,96660654[b]	0,94197573[b]				2,46(9)[b]	2,68(9)[b]	2,91(9)[b]
$3s_{1/2}$	$9p_{3/2}$	1,01	0,99	0,97	-5,95674	-5,90824	-5,86098	1,80(9)	2,10(9)	2,46(9)
		0,96266728[b]	0,93809661[b]	0,9142856[b]				1,85(9)[b]	2,01(9)[b]	2,19(9)[b]

Tablo 3.6. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			$A_{ki}(s^{-1})$		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$4d_{3/2}$	$4f_{7/2}$	63,27	60,57	58,00	-8,39993	-8,35234	-8,30528	8,29(2)	1,01(3)	1,23(3)
		59,46174069[a]	56,82426285[a]	54,32829052[a]				1116,3[a]	1370,1[a]	1678,2[a]
$4d_{3/2}$	$5f_{7/2}$	4,52	4,42	4,32	-5,17915	-5,16035	-5,14176	2,70(8)	2,95(8)	3,23(8)
		4,50455401[a]	4,39891643[a]	4,29667272[a]				2,70(8)[a]	2,95(8)[a]	3,23(8)[a]
$4d_{3/2}$	$6f_{7/2}$	3,00	2,93	2,87	-5,46517	-5,44608	-5,42720	3,17(8)	3,47(8)	3,79(8)
		2,99433524[a]	2,92577303[a]	2,85940889[a]				3,26(8)[a]	3,57(8)[a]	3,91(8)[a]
$4d_{3/2}$	$7f_{7/2}$	2,50	2,44	2,38	-5,72731	-5,70869	-5,69029	2,51(8)	2,74(8)	2,99(8)
		2,49007722[a]	2,43350612[a]	2,37874808[a]				2,76(8)[a]	3,02(8)[a]	3,31(8)[a]
$4d_{3/2}$	$8f_{7/2}$	2,25	2,2	2,15	-5,98817	-5,97098	-5,95403	1,69(8)	1,84(8)	2,01(8)
		2,24460225[b]	2,19380057[b]	2,14462691[b]				2,16(8)[b]	2,37(8)[b]	2,59(8)[b]
$4d_{3/2}$	$9f_{7/2}$	2,11	2,06	2,01	-6,37423	-6,36273	-6,35159	7,94(7)	8,53(7)	9,16(7)
		2,10249633[b]	2,05501525[b]	2,00905573[b]				1,67(8)[b]	1,83(8)[b]	2,00(8)[b]
$4d_{3/2}$	$4f_{5/2}$	96,66	92,57	88,70	-9,19732	-9,15067	-9,10456	7,55(1)	9,17(1)	1,11(2)
		87,64870372[a]	83,72741872[a]	80,01727281[a]				119,74[a]	147,12[a]	180,39[a]
$4d_{3/2}$	$5f_{5/2}$	4,58	4,48	4,37	-5,40331	-5,38427	-5,36544	2,09(8)	2,29(8)	2,51(8)
		4,56175793[a]	4,45597469[a]	4,35358381[a]				2,10(8)[a]	2,30(8)[a]	2,51(8)[a]
$4d_{3/2}$	$6f_{5/2}$	3,02	2,95	2,88	-5,71049	-5,69164	-5,67300	2,38(8)	2,60(8)	2,84(8)
		3,00887414[a]	2,94028954[a]	2,87390275[a]				2,48(8)[a]	2,72(8)[a]	2,97(8)[a]
$4d_{3/2}$	$7f_{5/2}$	2,50	2,44	2,39	-5,98733	-5,96929	-5,95148	1,83(8)	2,00(8)	2,18(8)
		2,49639604[a]	2,43981724[a]	2,3850514[a]				2,08(8)[a]	2,27(8)[a]	2,49(8)[a]
$4d_{3/2}$	$8f_{5/2}$	2,25	2,2	2,15	-6,26335	-6,24710	-6,23109	1,20(8)	1,30(8)	1,41(8)
		2,24803744[b]	2,19723208[b]	2,1480547[b]				1,61(8)[b]	1,77(8)[b]	1,93(8)[b]

Tablo 3.6. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			$A_{ki}(s^{-1})$		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$4d_{3/2}$	$9f_{5/2}$	2,11	2,06	2,01	-6,67561	-6,66587	-6,65652	5,28(7)	5,65(7)	6,04(7)
		2,10461094[b]	2,05712776[b]	2,01116612[b]				1,24(8)[b]	1,36(8)[b]	1,48(8)[b]
$4d_{3/2}$	$2p_{1/2}$	0,49	0,48	0,47	-5,47804	-5,45942	-5,44106	2,30(10)	2,52(10)	2,77(10)
		0,4764854[a]	0,46351993[a]	0,45095402[a]				2,68(10)[a]	2,97(10)[a]	3,28(10)[a]
$4d_{3/2}$	$3p_{1/2}$	1,90	1,86	1,81	-6,00090	-5,98262	-5,96455	4,60(8)	5,04(8)	5,52(8)
		1,7710729[a]	1,72141826[a]	1,67331224[a]				4,90(8)[a]	5,38(8)[a]	5,90(8)[a]
$4d_{3/2}$	$4p_{1/2}$	45,47	43,91	42,43	-9,01717	-8,98143	-8,94636	7,75(2)	9,03(2)	1,05(3)
		23,03148606[a]	21,85289249[a]	20,74038267[a]				21297[a]	26988[a]	34154[a]
$4d_{3/2}$	$5p_{1/2}$	4,90	4,8	4,69	-7,58216	-7,56244	-7,54300	3,63(6)	3,97(6)	4,34(6)
		5,22443769[a]	5,12394752[a]	5,02704846[a]				5,89(6)[a]	6,52(6)[a]	7,22(6)[a]
$4d_{3/2}$	$6p_{1/2}$	3,09	3,02	2,95	-8,12193	-8,10811	-8,09470	2,65(6)	2,86(6)	3,08(6)
		3,16063286[a]	3,09294571[a]	3,02748598[a]				7,61(6)[a]	8,44(6)[a]	9,36(6)[a]
$4d_{3/2}$	$7p_{1/2}$	2,53	2,47	2,42	-8,87114	-8,87644	-8,88312	7,02(5)	7,26(5)	7,48(5)
		2,56018264[a]	2,50394109[a]	2,44952324[a]				6,55(6)[a]	7,27(6)[a]	8,07(6)[a]
$4d_{3/2}$	$8p_{1/2}$			2,16			-9,85207			1,00(5)
				2,18250683[b]						6,36(6)[b]
$4d_{3/2}$	$9p_{1/2}$	2,11	2,07	2,02	-8,23586	-8,18755	-8,14011	4,33(6)	5,07(6)	5,91(6)
		2,12539907[a]	2,07801512[a]	2,03215578[b]				3,99(6)[a]	4,43(6)[a]	4,92(6)[b]
$4d_{5/2}$	$4f_{7/2}$	188,37	180,25	172,57	-8,99578	-8,94805	-8,90084	2,37(1)	2,89(1)	3,52(1)
		184,89911407[a]	176,84723948[a]	169,22436224[a]				25,694[a]	31,386[a]	38,259[a]
$4d_{5/2}$	$5f_{7/2}$	4,75	4,64	4,54	-4,33748	-4,31851	-4,29975	1,70(9)	1,86(9)	2,03(9)
		4,74860013[a]	4,64284472[a]	4,54048215[a]				1,69(9)[a]	1,85(9)[a]	2,02(9)[a]

Tablo 3.6. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			$A_{ki}(s^{-1})$		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$4d_{5/2}$	$6f_{7/2}$	3,10	3,03	2,97	-4,64599	-4,62717	-4,60857	1,96(9)	2,14(9)	2,33(9)
		3,10024878[a]	3,0317133[a]	2,9653763[a]				1,99(9)[a]	2,17(9)[a]	2,37(9)[a]
$4d_{5/2}$	$7f_{7/2}$	2,56	2,51	2,45	-4,91080	-4,89248	-4,87437	1,56(9)	1,70(9)	1,85(9)
		2,56288822[a]	2,50635231[a]	2,45162997[a]				1,65(9)[a]	1,80(9)[a]	1,97(9)[a]
$4d_{5/2}$	$8f_{7/2}$	2,30	2,25	2,20	-5,15566	-5,13835	-5,12127	1,10(9)	1,19(9)	1,30(9)
		2,3035952[b]	2,25282851[b]	2,20369033[b]				1,28(9)[b]	1,40(9)[b]	1,53(9)[b]
$4d_{5/2}$	$9f_{7/2}$	2,15	2,11	2,06	-5,45223	-5,43796	-5,42395	6,34(8)	6,85(8)	7,40(8)
		2,15417005[b]	2,1067229[b]	2,06079778[b]				9,82(8)[b]	1,07(9)[b]	1,17(9)[b]
$4d_{5/2}$	$2p_{3/2}$	0,57	0,56	0,54	-3,76467	-3,74638	-3,72831	5,92(11)	6,46(11)	7,05(11)
		0,56791724[a]	0,55521483[a]	0,5429194[a]				5,88(11)[a]	6,41(11)[a]	6,99(11)[a]
$4d_{5/2}$	$3p_{3/2}$	2,13	2,08	2,03	-4,21756	-4,19887	-4,18039	1,49(10)	1,63(10)	1,78(10)
		2,11936528[a]	2,07039613[a]	2,02299707[a]				1,51(10)[a]	1,65(10)[a]	1,80(10)[a]
$4d_{5/2}$	$4p_{3/2}$	103,46	99,24	95,24	-8,31967	-8,27511	-8,23112	4,98(2)	5,99(2)	7,20(2)
		87,64870372[a]	83,72741872[a]	80,01727281[a]				1113[a]	1367,3[a]	1676,3[a]
$4d_{5/2}$	$5p_{3/2}$	4,92	4,81	4,71	-5,90345	-5,88312	-5,86299	8,62(7)	9,43(7)	1,03(8)
		4,95155753[a]	4,84608007[a]	4,74399993[a]				1,02(8)[a]	1,12(8)[a]	1,23(8)[a]
$4d_{5/2}$	$6p_{3/2}$	3,14	3,07	3,00	-6,32200	-6,30455	-6,28736	8,07(7)	8,78(7)	9,54(7)
		3,14900295[a]	3,08051984[a]	3,01423601[a]				1,24(8)[a]	1,37(8)[a]	1,51(8)[a]
$4d_{5/2}$	$7p_{3/2}$	2,58	2,52	2,47	-6,77846	-6,76706	-6,75605	4,18(7)	4,49(7)	4,81(7)
		2,58368948[a]	2,52717368[a]	2,47247173[a]				1,06(8)[a]	1,17(8)[a]	1,28(8)[a]
$4d_{5/2}$	$8p_{3/2}$	2,31	2,26	2,21	-7,53674	-7,54955	-7,56426	9,07(6)	9,21(6)	9,30(6)
		2,31480202[b]	2,26404545[b]	2,21491754[b]				8,32(7)[b]	9,16(7)[b]	1,01(8)[b]

Tablo 3.6. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			$A_{ki}(s^{-1})$		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$4d_{5/2}$	$9p_{3/2}$	2,16	2,11	2,06	-7,59497	-7,51802	-7,44446	9,10(6)	1,14(7)	1,41(7)
		2,16103227[b]	2,113591[b]	2,06767186[b]				6,44(7)[b]	7,08(7)[b]	7,79(7)[b]
$4d_{5/2}$	$2p_{1/2}$	0,49	0,48	0,46	-4,38934	-4,36922	-4,34932	1,90(11)	2,09(11)	2,31(11)
		0,47390908[a]	0,46096799[a]	0,44842682[a]				2,16(11)[a]	2,40(11)[a]	2,66(11)[a]
$4d_{5/2}$	$3p_{1/2}$	1,87	1,82	1,77	-5,01428	-4,99727	-4,98048	3,09(9)	3,38(9)	3,69(9)
		1,73599454[a]	1,68673926[a]	1,63903688[a]				3,16(9)[a]	3,45(9)[a]	3,76(9)[a]
$4d_{5/2}$	$4p_{1/2}$	30,78	29,64	28,56	-7,46948	-7,42997	-7,39107	3,98(4)	4,70(4)	5,54(4)
		18,23885469[a]	17,32980571[a]	16,47109444[a]				5,14(5)[a]	6,47(5)[a]	8,14(5)[a]
$4d_{5/2}$	$5p_{1/2}$	5,17	5,06	4,96	-6,43799	-6,41621	-6,39469	4,55(7)	4,99(7)	5,47(7)
		5,55558712[a]	5,45796379[a]	5,36404193[a]				6,34(7)[a]	6,99(7)[a]	7,70(7)[a]
$4d_{5/2}$	$6p_{1/2}$	3,19	3,12	3,05	-6,87865	-6,85964	-6,84092	4,34(7)	4,74(7)	5,16(7)
		3,27886968[a]	3,21158371[a]	3,14653647[a]				8,44(7)[a]	9,34(7)[a]	1,03(8)[a]
$4d_{5/2}$	$7p_{1/2}$	2,60	2,54	2,48	-7,32891	-7,31476	-7,30097	2,32(7)	2,51(7)	2,70(7)
		2,6372146[a]	2,58113209[a]	2,52687709[a]				7,34(7)[a]	8,12(7)[a]	8,98(7)[a]
$4d_{5/2}$	$8p_{1/2}$	2,32	2,27	2,22	-7,99124	-7,99268	-7,99519	6,32(6)	6,59(6)	6,85(6)
		2,34315484[b]	2,29261223[b]	2,24370488[b]				5,81(7)[b]	6,43(7)[b]	7,11(7)[b]
$4d_{5/2}$	$9p_{1/2}$	2,16	2,11	2,07	-8,73923	-8,63731	-8,54214	1,30(6)	1,72(6)	2,24(6)
		2,17821884[b]	2,13090157[b]	2,08511021[b]				4,51(7)[b]	4,99(7)[b]	5,52(7)[b]
$4s_{1/2}$	$2p_{3/2}$	0,58	0,56	0,55	-5,53447	-5,52279	-5,51158	2,92(10)	3,14(10)	3,37(10)
		0,58616924[a]	0,57359165[a]	0,56142507[a]				9,71(10)[a]	1,08(11)[a]	1,19(11)[a]
$4s_{1/2}$	$3p_{3/2}$	2,26	2,21	2,16	-5,39399	-5,37424	-5,35476	2,63(9)	2,88(9)	3,15(9)
		2,39801612[a]	2,3513074[a]	2,30625355[a]				4,13(9)[a]	4,56(9)[a]	5,04(9)[a]

Tablo 3.6. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			$A_{ki}(s^{-1})$		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$4s_{1/2}$	$4p_{3/2}$	53,41	51,72	50,12	-7,74113	-7,70913	-7,67781	1,06(4)	1,22(4)	1,39(4)
		23,03148606[a]	21,85289249[a]	20,74038267[a]				6,45(5)[a]	8,16(5)[a]	1,03(6)[a]
$4s_{1/2}$	$5p_{3/2}$	4,31	4,21	4,12	-5,59833	-5,58087	-5,56357	2,26(8)	2,46(8)	2,69(8)
		3,89431363[a]	3,78706974[a]	5,02704846[a]				1,95(8)[a]	2,09(8)[a]	3,47(8)[a]
$4s_{1/2}$	$6p_{3/2}$	2,88	2,82	2,75	-5,88519	-5,86953	-5,85408	2,62(8)	2,84(8)	3,08(8)
		2,68536514[a]	2,61557858[a]	3,02748598[a]				2,95(8)[a]	3,18(8)[a]	4,79(8)[a]
$4s_{1/2}$	$7p_{3/2}$	2,40	2,35	2,29	-6,24488	-6,23310	-6,22156	1,64(8)	1,77(8)	1,90(8)
		2,26310179[a]	2,20554335[a]	2,44952324[a]				2,81(8)[a]	3,04(8)[a]	4,27(8)[a]
$4s_{1/2}$	$8p_{3/2}$	2,17	2,12	2,07	-6,82778	-6,82865	-6,83013	5,27(7)	5,51(7)	5,75(7)
		2,05410348[b]	2,00243778[b]	2,18250683[b]				2,36(8)[b]	2,55(8)[b]	3,44(8)[b]
$4s_{1/2}$	$9p_{3/2}$	2,03	1,99	1,94	-7,53557	-7,44819	-7,36639	1,18(7)	1,50(7)	1,90(7)
		1,93210647[b]	1,88383347[b]	2,03215578[b]				1,91(8)[b]	2,07(8)[b]	2,70(8)[b]
$5d_{3/2}$	$4f_{7/2}$	5,06	4,95	4,85	-6,81949	-6,79702	-6,77476	9,87(6)	1,08(7)	1,19(7)
		5,08780791[a]	4,98261689[a]	4,88082803[a]				1,12(7)[a]	1,24(7)[a]	1,36(7)[a]
$5d_{3/2}$	$5f_{7/2}$	132,09	126,64	121,47	-8,80862	-8,76311	-8,71815	7,42(1)	8,97(1)	1,08(2)
		115,85173234[a]	110,70710863[a]	105,83864829[a]				141,38[a]	173,55[a]	212,61[a]
$5d_{3/2}$	$6f_{7/2}$	8,36	8,17	7,98	-5,75720	-5,73892	-5,72085	2,08(7)	2,28(7)	2,49(7)
		8,29200435[a]	8,09754986[a]	7,90934333[a]				2,11(7)[a]	2,31(7)[a]	2,52(7)[a]
$5d_{3/2}$	$7f_{7/2}$	5,34	5,22	5,10	-5,97086	-5,95248	-5,93432	3,13(7)	3,41(7)	3,72(7)
		5,31270211[a]	5,19119541[a]	5,07358437[a]				3,32(7)[a]	3,63(7)[a]	3,97(7)[a]
$5d_{3/2}$	$8f_{7/2}$	4,33	4,23	4,13	-6,20331	-6,18578	-6,16849	2,79(7)	3,04(7)	3,31(7)
		4,30760816[b]	4,20992221[b]	4,11536719[b]				3,31(7)[b]	3,62(7)[b]	3,96(7)[b]

Tablo 3.6. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			$A_{ki}(s^{-1})$		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$5d_{3/2}$	$9f_{7/2}$	3,83	3,74	3,66	-6,52387	-6,50995	-6,49631	1,70(7)	1,84(7)	1,99(7)
		3,8130209[b]	3,72691373[b]	3,64356616[b]				2,90(7)[b]	3,17(7)[b]	3,47(7)[b]
$5d_{3/2}$	$4f_{5/2}$	4,92	4,82	4,71	-7,14252	-7,12181	-7,10132	4,95(6)	5,43(6)	5,94(6)
		4,95155753[a]	4,84608007[a]	4,74399993[a]				5,98(6)[a]	6,59(6)[a]	7,25(6)[a]
$5d_{3/2}$	$5f_{5/2}$	206,14	197,83	189,95	-9,62965	-9,58564	-9,54221	6,13778	7,37493	8,84059
		171,00159877[a]	163,34730709[a]	156,10525339[a]				15,26[a]	18,755[a]	23,004[a]
$5d_{3/2}$	$6f_{5/2}$	8,47	8,28	8,09	-5,97297	-5,95426	-5,93576	1,65(7)	1,80(7)	1,97(7)
		8,40446391[a]	8,20972947[a]	8,02124013[a]				1,68(7)[a]	1,84(7)[a]	2,01(7)[a]
$5d_{3/2}$	$7f_{5/2}$	5,37	5,25	5,13	-6,20635	-6,18797	-6,16981	2,40(7)	2,62(7)	2,86(7)
		5,34154853[a]	5,21999952[a]	5,10234565[a]				2,60(7)[a]	2,85(7)[a]	3,11(7)[a]
$5d_{3/2}$	$8f_{5/2}$	4,34	4,24	4,15	-6,45379	-6,43659	-6,41961	2,08(7)	2,26(7)	2,46(7)
		4,32027754[b]	4,22257725[b]	4,12800772[b]				2,56(7)[b]	2,81(7)[b]	3,07(7)[b]
$5d_{3/2}$	$9f_{5/2}$	3,83	3,75	3,66	-6,79367	-6,78047	-6,76755	1,22(7)	1,31(7)	1,41(7)
		3,81998161[b]	3,73386767[b]	3,65051324[b]				2,23(7)[b]	2,44(7)[b]	2,67(7)[b]
$5d_{3/2}$	$2p_{1/2}$	0,44	0,43	0,42	-5,93173	-5,91668	-5,90198	9,86(9)	1,07(10)	1,17(10)
		0,4325136[a]	0,4209285[a]	0,40969992[a]				1,52(10)[a]	1,68(10)[a]	1,86(10)[a]
$5d_{3/2}$	$3p_{1/2}$	1,35	1,32	1,29	-6,34526	-6,32813	-6,31124	4,11(8)	4,49(8)	4,90(8)
		1,28535475[a]	1,25123214[a]	1,21816481[a]				5,19(8)[a]	5,71(8)[a]	6,27(8)[a]
$5d_{3/2}$	$4p_{1/2}$	4,25	4,15	4,05	-6,71412	-6,69614	-6,67835	1,79(7)	1,95(7)	2,13(7)
		3,89431363[a]	3,78706974[a]	3,68317338[a]				1,77(7)[a]	1,93(7)[a]	2,10(7)[a]
$5d_{3/2}$	$5p_{1/2}$	104,53	101,25	98,12	-9,66211	-9,63022	-9,59902	3,32(1)	3,81(1)	4,36(1)
		45,54215484[a]	43,22672499[a]	41,04079159[a]				1960[a]	2480,2[a]	3134,3[a]

Tablo 3.6. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			$A_{ki}(s^{-1})$		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$5d_{3/2}$	$6p_{1/2}$	9,04	8,84	8,64	-7,90705	-7,88769	-7,86861	5,06(5)	5,53(5)	6,04(5)
		9,70624124[a]	9,52194954[a]	9,34429432[a]				8,03(5)[a]	8,87(5)[a]	9,80(5)[a]
$5d_{3/2}$	$7p_{1/2}$	5,49	5,37	5,25	-8,37245	-8,35771	-8,34329	4,70(5)	5,08(5)	5,49(5)
		5,64234436[a]	5,52258721[a]	5,40678419[a]				1,23(6)[a]	1,37(6)[a]	1,51(6)[a]
$5d_{3/2}$	$8p_{1/2}$	4,38	4,29	4,19	-9,09106	-9,09300	-9,09593	1,41(5)	1,47(5)	1,52(5)
		4,44803481[a]	4,35101716[a]	4,25715189[b]				1,20(6)[a]	1,33(6)[a]	1,47(6)[b]
$5d_{3/2}$	$9p_{1/2}$	3,85	3,77	3,68	-9,46594	-9,38820	-9,31398	7,68(4)	9,61(4)	1,19(5)
		3,88902225[b]	3,80325626[b]	3,72026061[b]				1,03(6)[b]	1,14(6)[b]	1,26(6)[b]
$5d_{5/2}$	$4f_{7/2}$	4,94	4,83	4,73	-6,12025	-6,09994	-6,07983	3,46(7)	3,79(7)	4,14(7)
		4,94080423[b]	4,83512992[b]	4,73284951[a]				3,81(7)[b]	4,17(7)[b]	4,57(7)[a]
$5d_{5/2}$	$5f_{7/2}$	384,09	367,92	352,61	-9,37000	-9,32358	-9,27769	2,41093	2,92387	3,53815
		359,21812205[a]	343,53419253[a]	328,68678874[a]				3,3295[a]	4,0698[a]	4,9645[a]
$5d_{5/2}$	$6f_{7/2}$	8,73	8,53	8,34	-4,89678	-4,87795	-4,86960	1,39(8)	1,52(8)	1,66(8)
		8,71458137[a]	8,51990359[a]	8,33147179[a]				1,40(8)[a]	1,53(8)[a]	1,67(8)[a]
$5d_{5/2}$	$7f_{7/2}$	5,49	5,37	5,25	-5,12830	-5,10969	-8,78249	2,06(8)	2,25(8)	2,45(8)
		5,4830503[a]	5,36158724[a]	5,24402053[a]				2,15(8)[a]	2,35(8)[a]	2,56(8)[a]
$5d_{5/2}$	$8f_{7/2}$	4,42	4,32	4,23	-5,35709	-5,33922	-6,17228	1,87(8)	2,04(8)	2,22(8)
		4,41892283[a]	4,32129418[a]	4,22679728[b]				2,11(8)[a]	2,30(8)[a]	2,51(8)[b]
$5d_{5/2}$	$9f_{7/2}$	3,90	3,82	3,73	-5,62637	-5,61076	-6,54893	1,29(8)	1,40(8)	1,52(8)
		3,89998335[b]	3,81393198[b]	3,73064098[b]				1,83(8)[b]	1,99(8)[b]	2,18(8)[b]
$5d_{5/2}$	$2p_{3/2}$	0,51	0,5	0,49	-4,14805	-4,13089	-7,02181	3,06(11)	3,33(11)	3,63(11)
		0,50796889[b]	0,49662817[b]	0,48565083[a]				3,31(11)[b]	3,61(11)[b]	3,94(11)[a]

Tablo 3.6. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			$A_{ki}(s^{-1})$		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$5d_{5/2}$	$3p_{3/2}$	1,47	1,44	1,41	-4,55077	-4,53254	-8,79923	1,44(10)	1,57(10)	1,71(10)
		1,47135868[a]	1,43786904[a]	1,40545252[a]				1,54(10)[a]	1,68(10)[a]	1,84(10)[a]
$5d_{5/2}$	$4p_{3/2}$	4,60	4,49	4,39	-4,90629	-4,88784	-4,86960	6,53(8)	7,14(8)	7,79(8)
		4,56175793[a]	4,45597469[a]	4,35358381[a]				6,71(8)[a]	7,34(8)[a]	8,02(8)[a]
$5d_{5/2}$	$5p_{3/2}$	220,40	211,82	203,68	-8,86604	-8,82398	-8,78249	3,12(1)	3,72(1)	4,42(1)
		171,00159877[a]	163,34730709[a]	156,10525339[a]				108,45[a]	133,26[a]	163,43[a]
$5d_{5/2}$	$6p_{3/2}$	9,03	8,83	8,64	-6,21206	-6,19206	-6,17228	1,26(7)	1,37(7)	1,50(7)
		9,1110961[a]	8,91692673[a]	8,72901162[a]				1,48(7)[a]	1,62(7)[a]	1,78(7)[a]
$5d_{5/2}$	$7p_{3/2}$	5,56	5,43	5,32	-6,58337	-6,56602	-6,54893	1,41(7)	1,53(7)	1,67(7)
		5,57914729[a]	5,45777978[a]	5,34031006[a]				2,15(7)[a]	2,36(7)[a]	2,59(7)[a]
$5d_{5/2}$	$8p_{3/2}$	4,45	4,35	4,26	-7,04284	-7,03212	-7,02181	7,64(6)	8,18(6)	8,76(6)
		4,46034642[b]	4,36275482[b]	4,26829552[b]				2,05(7)[b]	2,26(7)[b]	2,48(7)[b]
$5d_{5/2}$	$9p_{3/2}$	3,91	3,83	3,74	-8,59519	-8,68809	-8,79923	2,76(5)	2,33(5)	1,89(5)
		3,92253367[b]	3,8365012[b]	3,75322939[b]				1,75(7)[b]	1,93(7)[b]	2,12(7)[b]
$5d_{5/2}$	$2p_{1/2}$	0,44	0,43	0,42	-4,80062	-4,78270	-4,76507	8,93(10)	9,80(10)	1,07(11)
		0,4314224[a]	0,4198466[a]	0,40862747[a]				1,26(11)[a]	1,40(11)[a]	1,55(11)[a]
$5d_{5/2}$	$3p_{1/2}$	1,34	1,31	1,28	-5,31507	-5,29815	-5,28148	2,98(9)	3,25(9)	3,55(9)
		1,2757653[a]	1,24172062[a]	1,20873249[a]				3,50(9)[a]	3,83(9)[a]	4,19(9)[a]
$5d_{5/2}$	$4p_{1/2}$	4,16	4,06	3,96	-5,74469	-5,72827	-5,71205	1,16(8)	1,26(8)	1,37(8)
		3,80760103[a]	3,70125916[a]	3,59827508[a]				1,05(8)[a]	1,13(8)[a]	1,21(8)[a]
$5d_{5/2}$	$5p_{1/2}$	68,81	66,42	64,15	-8,08198	-8,04565	-8,00993	1,94(3)	2,27(3)	2,64(3)
		35,96400801[a]	34,18130077[a]	32,49714277[a]				46911[a]	58967[a]	74009[a]

Tablo 3.6. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			$A_{ki}(s^{-1})$		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$5d_{5/2}$	$6p_{1/2}$	9,46	9,26	9,06	-6,77750	-6,75643	-6,73562	6,22(6)	6,82(6)	7,46(6)
		10,29033195[a]	10,11136811[a]	9,93924707[a]				8,62(6)[a]	9,48(6)[a]	1,04(7)[a]
$5d_{5/2}$	$7p_{1/2}$	5,64	5,52	5,40	-7,16839	-7,14980	-7,13149	7,11(6)	7,75(6)	8,45(6)
		5,83487093[a]	5,71583304[a]	5,60076967[a]				1,37(7)[a]	1,51(7)[a]	1,66(7)[a]
$5d_{5/2}$	$8p_{1/2}$	4,48	4,38	4,29	-7,61827	-7,60498	-7,59206	4,00(6)	4,31(6)	4,64(6)
		4,56682551[b]	4,47008504[b]	4,37650367[b]				1,34(7)[b]	1,48(7)[b]	1,63(7)[b]
$5d_{5/2}$	$9p_{1/2}$	3,93	3,84	3,76	-8,76048	-8,79154	-8,82654	3,75(5)	3,65(5)	3,52(5)
		3,97952707[b]	3,89391936[b]	3,81108542[b]				1,15(7)[b]	1,27(7)[b]	1,41(7)[b]
$5g_{7/2}$	$4f_{5/2}$	4,75	4,64	4,54	-4,63440	-4,61513	-4,59606	8,59(8)	9,39(8)	1,03(9)
		4,74860013[a]	4,64284472[a]	4,54048215[a]				8,39(8)[a]	9,16(8)[a]	1,00(9)[a]
$5g_{7/2}$	$5f_{5/2}$			340,01			-9,98942			7,39(-1)
				328,68678874[a]						0,86286[a]
$5g_{7/2}$	$6f_{5/2}$	9,05	8,85	8,67	-7,25960	-7,23940	-7,21941	7,47(5)	8,17(5)	8,93(5)
		9,06185627[a]	8,86730393[a]	8,67899926[a]				8,29(5)[a]	9,09(5)[a]	9,96(5)[a]
$5g_{7/2}$	$7f_{5/2}$	5,59	5,47	5,35	-7,77351	-7,75658	-7,73990	5,99(5)	6,50(5)	7,06(5)
		5,59973415[a]	5,4783097[a]	5,36078209[a]				9,04(5)[a]	9,93(5)[a]	1,09(6)[a]
$5g_{7/2}$	$8f_{5/2}$	4,48	4,39	4,29	-8,47167	-8,46840	-8,46591	1,87(5)	1,97(5)	2,07(5)
$5g_{7/2}$	$9f_{5/2}$	3,95	3,86	3,78	-8,94387	-8,86323	-8,78629	8,12(4)	1,02(5)	1,27(5)
$5g_{9/2}$	$4f_{7/2}$	4,83	4,73	4,63	-3,86247	-3,84344	-3,82461	3,92(9)	4,28(9)	4,67(9)
		4,83521917[a]	4,7294673[a]	4,62710832[a]				3,84(9)[a]	4,19(9)[a]	4,57(9)[a]
$5g_{9/2}$	$5f_{7/2}$	614,57	588,1	563,04	-9,95878	-9,91101	-9,86375	1,94(-1)	2,37(-1)	2,88(-1)
		611,3089238[a]	584,89477544[a]	559,88363726[a]				0,19787[a]	0,24134[a]	0,29374[a]

Tablo 3.6. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			$A_{ki}(s^{-1})$		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$5g_{9/2}$	$6f_{7/2}$	9,06	8,87	8,68	-6,49966	-6,47976	-6,46006	3,21(6)	3,51(6)	3,84(6)
		9,06367299[a]	8,86905433[a]	8,6806824[a]				3,43(6)[a]	3,75(6)[a]	4,10(6)[a]
$5g_{9/2}$	$7f_{7/2}$	5,62	5,5	5,38	-6,95919	-6,94105	-6,92313	2,90(6)	3,16(6)	3,44(6)
		5,61922208[a]	5,49778891[a]	5,38025245[a]				3,71(6)[a]	4,06(6)[a]	4,45(6)[a]
$5g_{9/2}$	$8f_{7/2}$	4,51	4,41	4,31	-7,46031	-7,44797	-7,43602	1,42(6)	1,53(6)	1,64(6)
$5g_{9/2}$	$9f_{7/2}$	3,97	3,88	3,80	-9,24673	-9,37323	-9,53107	3,00(4)	2,34(4)	1,70(4)
$5g_{9/2}$	$4f_{5/2}$	4,71	4,6	4,50	-4,81227	-4,79285	-4,77362	4,63(8)	5,07(8)	5,54(8)
		4,7119977[a]	4,60628046[a]	4,50395646[a]				4,53(8)[a]	4,95(8)[a]	5,41(8)[a]
$5g_{9/2}$	$5f_{5/2}$	230,07	220,16	210,78	-9,63786	-9,58991	-9,54247	2,90107	3,53792	4,30543
		226,26184869[a]	216,42081551[a]	207,1038484[a]				3,1321[a]	3,8276[a]	4,6677[a]
$5g_{9/2}$	$6f_{5/2}$	9,19	8,99	8,80	-7,38339	-7,36194	-7,34069	5,45(5)	5,98(5)	6,55(5)
		9,19820768[a]	9,00380623[a]	8,81565455[a]				5,86(5)[a]	6,44(5)[a]	7,07(5)[a]
$5g_{9/2}$	$7f_{5/2}$	5,65	5,52	5,41	-7,84321	-7,82349	-7,80399	5,00(5)	5,47(5)	5,97(5)
		5,65150326[a]	5,53010643[a]	5,4126068[a]				6,48(5)[a]	7,12(5)[a]	7,83(5)[a]
$5g_{9/2}$	$8f_{5/2}$	4,52	4,42	4,32	-8,33212	-8,31746	-8,30312	2,54(5)	2,74(5)	2,96(5)
$5g_{9/2}$	$9f_{5/2}$	3,97	3,89	3,80	-9,76037	-9,81656	-9,88086	1,22(4)	1,12(4)	1,01(4)
$5s_{1/2}$	$2p_{3/2}$	0,51	0,5	0,49	-6,33909	-6,34850	-6,35965	5,84(9)	5,98(9)	6,10(9)
		0,51524642[a]	0,50395018[a]	0,49301871[a]				6,03(10)[a]	6,67(10)[a]	7,38(10)[a]
$5s_{1/2}$	$3p_{3/2}$	1,50	1,47	1,44	-5,90705	-5,89205	-5,87739	1,83(9)	1,98(9)	2,14(9)
		1,53412267[a]	1,50101047[a]	1,46898387[a]				4,50(9)[a]	4,98(9)[a]	5,51(9)[a]
$5s_{1/2}$	$4p_{3/2}$	4,88	4,77	4,67	-5,87008	-5,85061	-5,83140	1,89(8)	2,06(8)	2,26(8)
		5,22443769[a]	5,12394752[a]	5,02704846[a]				2,85(8)[a]	3,15(8)[a]	3,47(8)[a]

Tablo 3.6. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			$A_{ki}(s^{-1})$		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$5s_{1/2}$	$5p_{3/2}$	121,57	118,04	114,68	-8,40955	-8,38095	-8,35302	4,39(2)	4,98(2)	5,62(2)
		45,54215484[a]	43,22672499[a]	41,04079159[a]				54312[a]	68656[a]	86670[a]
$5s_{1/2}$	$6p_{3/2}$	8,10	7,91	7,73	-6,07839	-6,06055	-6,04287	2,12(7)	2,32(7)	2,53(7)
		7,26945705[a]	7,07203456[a]	6,88077608[a]				1,65(7)[a]	1,76(7)[a]	1,88(7)[a]
$5s_{1/2}$	$7p_{3/2}$	5,19	5,07	4,96	-6,33588	-6,31978	-6,30386	2,86(7)	3,11(7)	3,37(7)
		4,82988103[a]	4,70631532[a]	4,5865883[a]				2,95(7)[a]	3,17(7)[a]	3,39(7)[a]
$5s_{1/2}$	$8p_{3/2}$	4,21	4,11	4,02	-6,71123	-6,69946	-6,68792	1,83(7)	1,97(7)	2,11(7)
		3,96820027[b]	3,8689399[b]	3,77276636[b]				3,16(7)[b]	3,39(7)[b]	3,64(7)[b]
$5s_{1/2}$	$9p_{3/2}$	3,73	3,64	3,56	-7,90224	-7,93387	-7,96842	1,50(6)	1,46(6)	1,41(6)
		3,53678274[b]	3,44934727[b]	3,36463391[b]				2,89(7)[b]	3,11(7)[b]	3,34(7)[b]
$6d_{3/2}$	$4f_{7/2}$	3,19	3,12	3,06	-7,28333	-7,26309	-7,24309	8,52(6)	9,32(6)	1,02(7)
		3,20356259[a]	3,13513101[a]	3,06889946[a]				1,21(7)[a]	1,34(7)[a]	1,48(7)[a]
$6d_{3/2}$	$5f_{7/2}$	9,27	9,07	8,88	-6,96430	-6,94254	-6,92100	2,11(6)	2,31(6)	2,54(6)
		9,34820095[a]	9,15454622[a]	8,96715443[a]				2,42(6)[a]	2,66(6)[a]	2,93(6)[a]
$6d_{3/2}$	$6f_{7/2}$	244,66	234,91	225,66	-9,22677	-9,18324	-9,14028	8,26324	9,90862	1,19(1)
		200,24322375[a]	191,35246215[a]	182,93893839[a]				22,22[a]	27,274[a]	33,409[a]
$6d_{3/2}$	$7f_{7/2}$	13,94	13,62	13,31	-6,22003	-6,20205	-6,18428	2,59(6)	2,82(6)	3,08(6)
		13,76956109[a]	13,44706485[a]	13,1349306[a]				2,63(6)[a]	2,88(6)[a]	3,14(6)[a]
$6d_{3/2}$	$8f_{7/2}$	8,65	8,45	8,26	-6,40294	-6,38520	-6,36768	4,41(6)	4,81(6)	5,24(6)
		8,58050807[b]	8,38462676[b]	8,19502578[b]				4,88(6)[b]	5,33(6)[b]	5,82(6)[b]
$6d_{3/2}$	$9f_{7/2}$	6,86	6,71	6,56	-6,67187	-6,65642	-6,64123	3,77(6)	4,09(6)	4,43(6)
		6,81872084[b]	6,66443013[b]	6,51508478[b]				5,44(6)[b]	5,95(6)[b]	6,49(6)[b]

Tablo 3.6. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			$A_{ki}(s^{-1})$		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$6d_{3/2}$	$4f_{5/2}$	3,14	3,07	3,00	-7,68632	-7,67029	-7,65458	3,49(6)	3,78(6)	4,09(6)
		3,14900295[a]	3,08051984[a]	3,01423601[a]				6,37(6)[a]	7,02(6)[a]	7,73(6)[a]
$6d_{3/2}$	$5f_{5/2}$	9,04	8,84	8,65	-7,27661	-7,25638	-7,23638	1,08(6)	1,18(6)	1,29(6)
		9,1110961[a]	8,91692673[a]	8,72901162[a]				1,30(6)[a]	1,43(6)[a]	1,57(6)[a]
$6d_{3/2}$	$6f_{5/2}$			358,82			-9,98334			8,97(-1)
				270,08339525[a]						3,6269[a]
$6d_{3/2}$	$7f_{5/2}$	14,12	13,8	13,49	-6,43157	-6,41308	-6,39480	2,06(6)	2,26(6)	2,46(6)
		13,96502702[a]	13,64206007[a]	13,32945029[a]				2,13(6)[a]	2,33(6)[a]	2,54(6)[a]
$6d_{3/2}$	$8f_{5/2}$	8,69	8,49	8,30	-6,63399	-6,61614	-6,59850	3,42(6)	3,73(6)	4,06(6)
		8,63092518[b]	8,43497445[b]	8,24530322[b]				3,88(6)[b]	4,25(6)[b]	4,64(6)[b]
$6d_{3/2}$	$9f_{5/2}$	6,88	6,72	6,57	-6,92078	-6,90553	-6,89052	2,82(6)	3,06(6)	3,31(6)
		6,84101271[b]	6,68669896[b]	6,53733027[b]				4,29(6)[b]	4,69(6)[b]	5,13(6)[b]
$6d_{3/2}$	$2p_{1/2}$	0,42	0,41	0,40	-6,40191	-6,39420	-6,38711	3,69(9)	3,96(9)	4,23(9)
		0,41191756[a]	0,40096736[a]	0,39035399[a]				9,22(9)[a]	1,02(10)[a]	1,13(10)[a]
$6d_{3/2}$	$3p_{1/2}$	1,17	1,14	1,12	-6,69679	-6,68224	-6,66799	2,45(8)	2,66(8)	2,88(8)
		1,11906955[a]	1,08994154[a]	1,06171379[a]				3,99(8)[a]	4,39(8)[a]	4,82(8)[a]
$6d_{3/2}$	$4p_{1/2}$	2,85	2,78	2,72	-6,97949	-6,96259	-6,94590	2,15(7)	2,35(7)	2,55(7)
		2,68536514[a]	2,61557858[a]	2,54795607[a]				2,57(7)[a]	2,81(7)[a]	3,06(7)[a]
$6d_{3/2}$	$5p_{1/2}$	8,00	7,81	7,63	-7,25131	-7,23330	-7,21547	1,46(6)	1,60(6)	1,74(6)
		7,26945705[a]	7,07203456[a]	6,88077608[a]				1,34(6)[a]	1,44(6)[a]	1,56(6)[a]
$6d_{3/2}$	$7p_{1/2}$	14,99	14,66	14,34	-8,21325	-8,19430	-8,17563	9,08(4)	9,92(4)	1,08(5)
		16,22662271[a]	15,92195338[a]	15,62832553[a]				1,44(5)[a]	1,59(5)[a]	1,76(5)[a]

Tablo 3.6. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			$A_{ki}(s^{-1})$		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$6d_{3/2}$	$8p_{1/2}$	8,88	8,68	8,49	-8,66971	-8,65553	-8,64166	9,06(4)	9,79(4)	1,06(5)
		9,15631788[b]	8,96353491[b]	8,77713536[b]				2,52(5)[b]	2,79(5)[b]	3,09(5)[b]
$6d_{3/2}$	$9p_{1/2}$	6,94	6,79	6,64	-9,90937	-9,94187	-9,97821	8,52(3)	8,27(3)	7,96(3)
		7,06564665[b]	6,9125508[b]	6,76443842[b]				2,68(5)[b]	2,97(5)[b]	3,28(5)[b]
$6d_{5/2}$	$4f_{7/2}$	3,17	3,1	3,03	-6,57753	-6,55941	-6,54151	2,93(7)	3,19(7)	3,48(7)
		3,16924373[a]	3,10073247[a]	3,03442[a]				3,99(7)[a]	4,38(7)[a]	4,81(7)[a]
$6d_{5/2}$	$5f_{7/2}$	9,04	8,85	8,66	-6,24573	-6,22575	-6,20598	7,72(6)	8,44(6)	9,22(6)
		9,06185627[a]	8,86730393[a]	8,67899926[a]				8,48(6)[a]	9,30(6)[a]	1,02(7)[a]
$6d_{5/2}$	$6f_{7/2}$	698,06	669,44	642,33	-9,76134	-9,71639	-9,67199	2,96(-1)	3,57(-1)	4,30(-1)
		619,68809702[a]	592,60939752[a]	566,97547249[a]				0,53119[a]	0,64948[a]	0,79246[a]
$6d_{5/2}$	$7f_{7/2}$	14,48	14,15	13,84	-5,34904	-5,33035	-5,31186	1,78(7)	1,95(7)	2,12(7)
		14,4417378[a]	14,11887661[a]	13,8063742[a]				1,81(7)[a]	1,98(7)[a]	2,16(7)[a]
$6d_{5/2}$	$8f_{7/2}$	8,85	8,65	8,46	-5,54402	-5,52575	-5,50769	3,04(7)	3,32(7)	3,62(7)
		8,83681034[b]	8,64099696[b]	8,451465[b]				3,28(7)[b]	3,58(7)[b]	3,91(7)[b]
$6d_{5/2}$	$9f_{7/2}$	6,99	6,83	6,68	-5,78621	-5,76960	-5,75323	2,80(7)	3,04(7)	3,30(7)
		6,97959149[b]	6,82538728[b]	6,67612967[b]				3,61(7)[b]	3,94(7)[b]	4,30(7)[b]
$6d_{5/2}$	$2p_{3/2}$	0,48	0,47	0,46	-4,47515	-4,45970	-4,44452	1,61(11)	1,75(11)	1,89(11)
		0,48036254[a]	0,46964592[a]	0,45927271[a]				2,00(11)[a]	2,19(11)[a]	2,38(11)[a]
$6d_{5/2}$	$3p_{3/2}$	1,26	1,24	1,21	-4,85038	-4,83324	-4,81634	9,82(9)	1,07(10)	1,16(10)
		1,26138332[a]	1,23280484[a]	1,20514209[a]				1,16(10)[a]	1,27(10)[a]	1,39(10)[a]
$6d_{5/2}$	$4p_{3/2}$	3,02	2,96	2,89	-5,15979	-5,14183	-5,12409	8,42(8)	9,18(8)	1,00(9)
		3,00887414[a]	2,94028954[a]	2,87390275[a]				9,27(8)[a]	1,01(9)[a]	1,11(9)[a]

Tablo 3.6. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			$A_{ki}(s^{-1})$		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$6d_{5/2}$	$5p_{3/2}$	8,50	8,3	8,12	-5,43581	-5,41751	-5,39941	5,65(7)	6,17(7)	6,73(7)
		8,40446391[a]	8,20972947[a]	8,02124013[a]				5,83(7)[a]	6,37(7)[a]	6,95(7)[a]
$6d_{5/2}$	$6p_{3/2}$	413,97	398,55	383,91	-9,34364	-9,30381	-9,26459	2,94047	3,47706	4,10135
		295,83945395[a]	282,60512732[a]	270,08339525[a]				15,436[a]	18,968[a]	23,261[a]
$6d_{5/2}$	$7p_{3/2}$	14,96	14,64	14,32	-6,50287	-6,48323	-6,46381	2,34(6)	2,56(6)	2,79(6)
		15,12805063[a]	14,80605829[a]	14,49443888[a]				2,78(6)[a]	3,06(6)[a]	3,35(6)[a]
$6d_{5/2}$	$8p_{3/2}$	8,96	8,76	8,57	-6,86482	-6,84819	-6,83181	2,84(6)	3,08(6)	3,34(6)
		9,00403306[b]	8,80838384[b]	8,61901853[b]				4,60(6)[b]	5,05(6)[b]	5,55(6)[b]
$6d_{5/2}$	$9p_{3/2}$	7,03	6,87	6,72	-7,54116	-7,53876	-7,53704	9,71(5)	1,02(6)	1,07(6)
		7,05214772[b]	6,89800781[b]	6,74881545[b]				4,80(6)[b]	5,28(6)[b]	5,80(6)[b]
$6d_{5/2}$	$2p_{1/2}$	0,42	0,41	0,40	-5,21712	-5,20411	-5,19155	3,78(10)	4,09(10)	4,43(10)
		0,41134482[a]	0,40039927[a]	0,38979063[a]				7,74(10)[a]	8,59(10)[a]	9,52(10)[a]
$6d_{5/2}$	$3p_{1/2}$	1,17	1,14	1,11	-5,63576	-5,62067	-5,60587	1,89(9)	2,05(9)	2,23(9)
		1,1148524[a]	1,08575405[a]	1,05755647[a]				2,75(9)[a]	3,01(9)[a]	3,30(9)[a]
$6d_{5/2}$	$4p_{1/2}$	2,83	2,76	2,70	-5,97214	-5,95596	-5,94001	1,48(8)	1,61(8)	1,75(8)
		2,66120907[a]	2,59159277[a]	2,5241434[a]				1,59(8)[a]	1,73(8)[a]	1,87(8)[a]
$6d_{5/2}$	$5p_{1/2}$	7,83	7,65	7,47	-6,28745	-6,27096	-6,25467	9,35(6)	1,02(7)	1,11(7)
		7,09511375[a]	6,89938142[a]	6,7098331[a]				7,45(6)[a]	7,95(6)[a]	8,45(6)[a]
$6d_{5/2}$	$6p_{1/2}$	133,91	129,52	125,34	-8,60726	-8,57347	-8,54029	1,53(2)	1,77(2)	2,04(2)
		62,66490594[a]	59,57280478[a]	56,6513672[a]				6391,2[a]	8023[a]	10056[a]
$6d_{5/2}$	$7p_{1/2}$	15,62	15,28	14,96	-7,09148	-7,07102	-7,05082	1,11(6)	1,21(6)	1,33(6)
		17,16829368[a]	16,87255178[a]	16,58819856[a]				1,55(6)[a]	1,70(6)[a]	1,86(6)[a]

Tablo 3.6. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			$A_{ki}(s^{-1})$		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$6d_{5/2}$	$8p_{1/2}$	9,09	8,89	8,70	-7,47008	-7,45232	-7,43483	1,37(6)	1,49(6)	1,62(6)
		9,44875976[b]	9,25714875[b]	9,07195457[b]				2,79(6)[b]	3,07(6)[b]	3,38(6)[b]
$6d_{5/2}$	$9p_{1/2}$	7,07	6,92	6,77	-8,09403	-8,08666	-8,07981	5,37(5)	5,71(5)	6,06(5)
		7,23852716[b]	7,08587196[b]	6,93821105[b]				2,99(6)[b]	3,30(6)[b]	3,63(6)[b]
$6g_{7/2}$	$4f_{5/2}$	3,10	3,03	2,96	-5,12596	-5,10671	-5,08767	6,49(8)	7,10(8)	7,75(8)
		3,10024878[a]	3,0317133[a]	2,9653763[a]				6,35(8)[a]	6,94(8)[a]	7,58(8)[a]
$6g_{7/2}$	$5f_{5/2}$	8,72	8,52	8,34	-5,22701	-5,20792	-5,18903	6,50(7)	7,11(7)	7,76(7)
		8,71458137[a]	8,51990359[a]	8,33147179[a]				6,47(7)[a]	7,07(7)[a]	7,72(7)[a]
$6g_{7/2}$	$7f_{5/2}$	14,98	14,65	14,34	-7,29001	-7,27027	-7,25074	2,54(5)	2,78(5)	3,04(5)
		15,01196639[a]	14,68930211[a]	14,37699926[a]				2,86(5)[a]	3,14(5)[a]	3,44(5)[a]
$6g_{7/2}$	$8f_{5/2}$	9,01	8,81	8,62	-7,77943	-7,76379	-7,74843	2,28(5)	2,47(5)	2,67(5)
$6g_{7/2}$	$9f_{5/2}$	7,07	6,92	6,77	-9,01409	-9,04556	-9,08096	2,15(4)	2,09(4)	2,01(4)
$6g_{9/2}$	$4f_{7/2}$	3,14	3,07	3,01	-4,35693	-4,33798	-4,31923	2,97(9)	3,24(9)	3,53(9)
		3,09114798[a]	3,07517731[a]	3,00884869[a]				3,50(8)[a]	3,16(9)[a]	3,45(9)[a]
$6g_{9/2}$	$5f_{7/2}$	8,86	8,66	8,47	-4,44851	-4,42950	-4,41070	3,03(8)	3,31(8)	3,61(8)
		8,64305319[a]	8,66146516[a]	8,47303795[a]				3,42(7)[a]	3,29(8)[a]	3,59(8)[a]
$6g_{9/2}$	$7f_{7/2}$	14,98	14,66	14,35	-6,52386	-6,50427	-6,48489	1,11(6)	1,21(6)	1,33(6)
		15,22907373[a]	14,33370079[a]	14,36171927[a]				2,01(5)[a]	4,09(7)[a]	1,43(6)[a]
$6g_{9/2}$	$8f_{7/2}$	9,04	8,84	8,65	-6,95136	-6,93422	-6,91732	1,14(6)	1,24(6)	1,35(6)
$6g_{9/2}$	$9f_{7/2}$	7,1[a]	6,95	6,80	-7,68288	-7,68101	-7,67988	3,43(5)[a]	3,60(5)	3,77(5),8
$6g_{9/2}$	$4f_{5/2}$	3,09	3,02	2,96	-5,28884	-5,26910	-5,24956	3,59(8)	3,93(8)	4,30(8)
		3,09114798[a]	3,02261734[a]	2,95628525[a]				3,50(8)[a]	3,82(8)[a]	4,18(8)[a]

Tablo 3.6. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			$A_{ki}(s^{-1})$		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$6g_{9/2}$	$5f_{5/2}$	8,65	8,45	8,27	-5,41309	-5,39404	-5,37519	3,45(7)	3,77(7)	4,12(7)
		8,64305319[a]	8,44845578[a]	8,26010519[a]				3,42(7)[a]	3,74(7)[a]	4,09(7)[a]
$6g_{9/2}$	$6f_{5/2}$	412,25	394,83	378,33	-9,89350	-9,84667	-9,80037	5,02(-1)	6,09(-1)	7,38(-1)
		390,11225785[a]	373,12622773[a]	357,04516544[a]				0,65626[a]	0,80213[a]	0,97838[a]
$6g_{9/2}$	$7f_{5/2}$	15,19	14,87	14,55	-7,41726	-7,39633	-7,37561	1,84(5)	2,02(5)	2,21(5)
		15,22907373[a]	14,90665137[a]	14,59459379[a]				2,01(5)[a]	2,21(5)[a]	2,43(5)[a]
$6g_{9/2}$	$8f_{5/2}$	9,08	8,89	8,70	-7,84510	-7,82652	-7,80816	1,93(5)	2,10(5)	2,29(5)
$6g_{9/2}$	$9f_{5/2}$	7,12	6,97	6,82	-8,53667	-8,53052	-8,52493	6,37(4)	6,75(4)	7,14(4)
$6s_{1/2}$	$2p_{3/2}$	0,48	0,47	0,46	-8,73668	-9,55351	-9,91875	2,63(7)	4,20(6)	1,89(6)
		0,48407324[a]	0,47337783[a]	0,46302646[a]				3,80(10)[a]	4,21(10)[a]	4,65(10)[a]
$6s_{1/2}$	$3p_{3/2}$	1,27	1,25	1,22	-6,47026	-6,46487	-6,46013	6,95(8)	7,37(8)	7,79(8)
		1,28729531[a]	1,25885571[a]	1,23133625[a]				3,45(9)[a]	3,82(9)[a]	4,23(9)[a]
$6s_{1/2}$	$4p_{3/2}$	3,08	3,02	2,95	-6,28717	-6,27101	-6,25514	1,81(8)	1,96(8)	2,13(8)
		3,16063286[a]	3,09294571[a]	3,02748598[a]				3,92(8)[a]	4,33(8)[a]	4,79(8)[a]
$6s_{1/2}$	$5p_{3/2}$	9,00	8,8	8,61	-6,27279	-6,25360	-6,23468	2,20(7)	2,40(7)	2,62(7)
		9,70624124[a]	9,52194954[a]	9,34429432[a]				3,27(7)[a]	3,60(7)[a]	3,97(7)[a]
$6s_{1/2}$	$6p_{3/2}$	239,76	233,3	227,15	-8,96732	-8,94140	-8,91615	3,13(1)	3,51(1)	3,92(1)
		79,50589682[a]	75,4849337[a]	71,68836719[a]				7127,1[a]	8999,6[a]	11348[a]
$6s_{1/2}$	$7p_{3/2}$	13,62	13,31	13,02	-6,47437	-6,45634	-6,43847	3,02(6)	3,29(6)	3,59(6)
		12,18616584[a]	11,85872416[a]	11,54150645[a]				2,19(6)[a]	2,33(6)[a]	2,47(6)[a]
$6s_{1/2}$	$8p_{3/2}$	8,46	8,27	8,09	-6,73698	-6,72102	-6,70523	4,27(6)	4,64(6)	5,03(6)
		7,87282318[b]	7,67374978[b]	7,48086867[b]				4,40(6)[b]	4,71(6)[b]	5,02(6)[b]

Tablo 3.6. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			$A_{ki}(s^{-1})$		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$6s_{1/2}$	$9p_{3/2}$	6,72	6,57	6,42	-7,33484	-7,32827	-7,32194	1,71(6)	1,82(6)	1,93(6)
		6,33879589[b]	6,18216713[b]	6,03041831[b]				5,14(6)[b]	5,50(6)[b]	5,88(6)[b]
$7d_{3/2}$	$4f_{7/2}$	2,61	2,56	2,50	-7,74080	-7,72503	-7,70957	4,43(6)	4,80(6)	5,19(6)
		2,62030433[a]	2,56381092[a]	2,50913169[a]				9,64(6)[a]	1,06(7)[a]	1,17(7)[a]
$7d_{3/2}$	$5f_{7/2}$	5,64	5,52	5,40	-7,37189	-7,35235	-7,33306	2,23(6)	2,43(6)	2,65(6)
		5,6671661[a]	5,54588814[a]	5,42850929[a]				3,21(6)[a]	3,54(6)[a]	3,90(6)[a]
$7d_{3/2}$	$6f_{7/2}$	15,32	15	14,68	-7,18304	-7,16191	-7,14099	4,66(5)	5,11(5)	5,59(5)
		15,50660346[a]	15,18545963[a]	14,87470308[a]				5,44(5)[a]	5,99(5)[a]	6,58(5)[a]
$7d_{3/2}$	$7f_{7/2}$	418,05	401,99	386,74	-9,61941	-9,57782	-9,53680	1,146	1,36399	1,61957
		318,33200764[a]	304,20617512[a]	290,83842356[a]				4,4075[a]	5,409[a]	6,6247[a]
$7d_{3/2}$	$8f_{7/2}$	21,59	21,1	20,62	-6,60821	-6,59047	-6,57293	4,41(5)	4,81(5)	5,24(5)
		21,24918267[b]	20,75228418[b]	20,2713507[b]				4,54(5)[b]	4,95(5)[b]	5,40(5)[b]
$7d_{3/2}$	$9f_{7/2}$	13,08	12,79	12,50	-6,81139	-6,79488	-6,77861	7,52(5)	8,18(5)	8,88(5)
		12,95798526[b]	12,66272997[b]	12,37694122[b]				9,40(5)[b]	1,03(6)[b]	1,12(6)[b]
$7d_{3/2}$	$4f_{5/2}$	2,58	2,52	2,47	-8,38603	-8,38514	-8,38523	1,03(6)	1,08(6)	1,13(6)
		2,58368948[a]	2,52717368[a]	2,47247173[a]				5,02(6)[a]	5,54(6)[a]	6,10(6)[a]
$7d_{3/2}$	$5f_{5/2}$	5,56	5,43	5,32	-7,74765	-7,73150	-7,71564	9,66(5)	1,05(6)	1,14(6)
		5,57914729[a]	5,45777978[a]	5,34031006[a]				1,70(6)[a]	1,87(6)[a]	2,06(6)[a]
$7d_{3/2}$	$6f_{5/2}$	14,98	14,65	14,34	-7,48917	-7,46941	-7,44989	2,41(5)	2,64(5)	2,88(5)
		15,12805063[a]	14,80605829[a]	14,49443888[a]				2,94(5)[a]	3,23(5)[a]	3,55(5)[a]
$7d_{3/2}$	$8f_{5/2}$	21,85	21,36	20,89	-6,81834	-6,80008	-6,78202	3,54(5)	3,86(5)	4,21(5)
		21,56108632[b]	21,06346134[b]	20,58179386[b]				3,71(5)[b]	4,05(5)[b]	4,42(5)[b]

Tablo 3.6. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			$A_{ki}(s^{-1})$		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$7d_{3/2}$	$9f_{5/2}$	13,14	12,85	12,56	-7,04295	-7,02629	-7,00985	5,83(5)	6,34(5)	6,88(5)
		13,03872659[b]	12,74336692[b]	12,45747253[b]				7,58(5)[b]	8,28(5)[b]	9,04(5)[b]
$7d_{3/2}$	$2p_{1/2}$	0,41	0,4	0,39	-7,08081	-7,09709	-7,11585	8,20(8)	8,30(8)	8,36(8)
		0,40045607[a]	0,3898564[a]	0,37958273[a]				5,95(9)[a]	6,59(9)[a]	7,29(9)[a]
$7d_{3/2}$	$3p_{1/2}$	1,08	1,06	1,03	-7,09782	-7,08876	-7,08013	1,14(8)	1,22(8)	1,30(8)
		1,03833308[a]	1,01157359[a]	0,98564122[a]				2,90(8)[a]	3,19(8)[a]	3,51(8)[a]
$7d_{3/2}$	$4p_{1/2}$	2,38	2,32	2,27	-7,28747	-7,27298	-7,25874	1,52(7)	1,65(7)	1,78(7)
		2,26310179[a]	2,20554335[a]	2,14977027[a]				2,40(7)[a]	2,62(7)[a]	2,85(7)[a]
$7d_{3/2}$	$5p_{1/2}$	5,14	5,03	4,91	-7,48093	-7,46411	-7,44750	2,08(6)	2,27(6)	2,47(6)
		4,82988103[a]	4,70631532[a]	4,5865883[a]				2,36(6)[a]	2,56(6)[a]	2,77(6)[a]
$7d_{3/2}$	$6p_{1/2}$	13,48	13,18	12,88	-7,68442	-7,66636	-7,64848	1,90(5)	2,07(5)	2,26(5)
		12,18616584[a]	11,85872416[a]	11,54150645[a]				1,62(5)[a]	1,74(5)[a]	1,87(5)[a]
$7d_{3/2}$	$8p_{1/2}$	23,09	22,57	22,08	-8,50512	-8,48676	-8,46864	1,96(4)	2,13(4)	2,33(4)
		25,16886694[b]	24,70068814[b]	24,24956595[b]				32387[b]	35696[b]	39298[b]
$7d_{3/2}$	$9p_{1/2}$	13,39	13,1	12,81	-9,11300	-9,10310	-9,09358	1,43(4)	1,53(4)	1,64(4)
		13,87977432[b]	13,58954678[b]	13,30895233[b]				62388[b]	68933[b]	76083[b]
$7d_{5/2}$	$4f_{7/2}$	2,60	2,55	2,49	-7,04424	-7,03133	-7,01876	1,48(7)	1,59(7)	1,71(7)
		2,60579577[a]	2,54927332[a]	2,4945646[a]				3,13(7)[a]	3,44(7)[a]	3,78(7)[a]
$7d_{5/2}$	$5f_{7/2}$	5,59	5,47	5,35	-6,64661	-6,62885	-6,61134	8,02(6)	8,73(6)	9,49(6)
		5,59973415[a]	5,4783097[a]	5,36078209[a]				1,09(7)[a]	1,20(7)[a]	1,31(7)[a]
$7d_{5/2}$	$6f_{7/2}$	14,97	14,65	14,33	-6,44962	-6,42997	-6,41052	1,76(6)	1,93(6)	2,10(6)
		15,01196639[a]	14,68930211[a]	14,37699926[a]				1,95(6)[a]	2,14(6)[a]	2,35(6)[a]

Tablo 3.6. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			$A_{ki}(s^{-1})$		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$7d_{5/2}$	$8f_{7/2}$	22,33	21,83	21,35	-5,73045	-5,71193	-5,69362	3,11(6)	3,40(6)	3,70(6)
		22,25398932[b]	21,7565445[b]	22,14923085[b]				3,21(6)[b]	3,51(6)[b]	6,15(5)[b]
$7d_{5/2}$	$9f_{7/2}$	13,35	13,05	12,77	-5,93006	-5,91264	-5,89545	5,50(6)	5,98(6)	6,51(6)
		13,32487279[b]	13,02971882[b]	13,01494106[b]				6,51(6)[b]	7,11(6)[b]	1,03(6)[b]
$7d_{5/2}$	$2p_{3/2}$	0,47	0,45	0,44	-4,79331	-4,78080	-4,76865	8,27(10)	8,90(10)	9,58(10)
		0,46511883[a]	0,4547464[a]	0,44470635[a]				1,29(11)[a]	1,41(11)[a]	1,54(11)[a]
$7d_{5/2}$	$3p_{3/2}$	1,16	1,14	1,11	-5,13757	-5,12235	-5,10741	5,98(9)	6,49(9)	7,02(9)
		1,16142985[a]	1,1351735[a]	1,10975848[a]				8,39(9)[a]	9,17(9)[a]	1,00(10)[a]
$7d_{5/2}$	$4p_{3/2}$	2,51	2,45	2,40	-5,41729	-5,40052	-5,38400	6,77(8)	7,36(8)	8,00(8)
		2,49639604[a]	2,43981724[a]	2,3850514[a]				8,42(8)[a]	9,21(8)[a]	1,01(9)[a]
$7d_{5/2}$	$5p_{3/2}$	5,38	5,26	5,14	-5,64907	-5,63138	-5,61390	8,62(7)	9,40(7)	1,02(8)
		5,34154853[a]	5,21999952[a]	5,10234565[a]				9,70(7)[a]	1,06(8)[a]	1,16(8)[a]
$7d_{5/2}$	$6p_{3/2}$	14,15	13,84	13,53	-5,86614	-5,84793	-5,82994	7,55(6)	8,24(6)	8,99(6)
		13,96502702[a]	13,64206007[a]	13,32945029[a]				7,82(6)[a]	8,54(6)[a]	9,32(6)[a]
$7d_{5/2}$	$7p_{3/2}$	715,35	689,86	665,65	-9,77128	-9,73357	-9,69648	3,68(-1)	4,31(-1)	5,05(-1)
		470,61699657[a]	449,5826294[a]	429,68043706[a]				2,9118[a]	3,5777[a]	4,3871[a]
$7d_{5/2}$	$8p_{3/2}$	23,04	22,54	22,05	-6,77738	-6,75823	-6,73930	5,24(5)	5,73(5)	6,25(5)
		23,34588428[b]	22,84983168[b]	20,58179386[b]				6,46(5)[b]	7,09(5)[b]	1,70(6)[b]
$7d_{5/2}$	$9p_{3/2}$	13,50	13,21	12,92	-7,23241	-7,21869	-7,20526	5,36(5)	5,78(5)	6,23(5)
		13,59184418[b]	13,29695525[b]	12,45747253[b]				1,18(6)[b]	1,29(6)[b]	3,53(6)[b]
$7d_{5/2}$	$2p_{1/2}$	0,41	0,4	0,39	-5,77224	-5,77328	-5,77550	1,11(10)	1,17(10)	1,22(10)
		0,40011561[a]	0,38951863[a]	0,3792477[a]				5,04(10)[a]	5,59(10)[a]	6,21(10)[a]

Tablo 3.6. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			$A_{ki}(s^{-1})$		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$7d_{5/2}$	$3p_{1/2}$	1,08	1,06	1,03	-6,00238	-5,99172	-5,98146	9,47(8)	1,02(9)	1,09(9)
		1,03604723[a]	1,00930263[a]	0,98338544[a]				2,03(9)[a]	2,22(9)[a]	2,43(9)[a]
$7d_{5/2}$	$4p_{1/2}$	2,37	2,32	2,26	-6,25409	-6,23981	-6,22579	1,10(8)	1,19(8)	1,29(8)
		2,25227108[a]	2,19477631[a]	2,13906812[a]				1,52(8)[a]	1,65(8)[a]	1,78(8)[a]
$7d_{5/2}$	$5p_{1/2}$	5,10	4,99	4,87	-6,48311	-6,46716	-6,45142	1,40(7)	1,52(7)	1,66(7)
		4,78081614[a]	4,65755912[a]	4,53814623[a]				1,39(7)[a]	1,49(7)[a]	1,60(7)[a]
$7d_{5/2}$	$6p_{1/2}$	13,21	12,91	12,61	-6,72080	-6,70411	-6,68760	1,21(6)	1,32(6)	1,44(6)
		11,87858161[a]	11,55396313[a]	11,23960312[a]				8,66(5)[a]	9,17(5)[a]	9,68(5)[a]
$7d_{5/2}$	$7p_{1/2}$	238,52	231,11	224,06	-9,07475	-9,04321	-9,01228	1,65(1)	1,88(1)	2,15(1)
		100,19705339[a]	95,27123218[a]	90,61691762[a]				1168,8[a]	1465,6[a]	1835[a]
$7d_{5/2}$	$8p_{1/2}$	23,94	23,42	22,92	-7,38498	-7,36518	-7,34564	2,40(5)	2,62(5)	2,86(5)
		26,59096711[b]	26,1366729[b]	25,69997708[b]				3,46(5)[b]	3,80(5)[b]	4,16(5)[b]
$7d_{5/2}$	$9p_{1/2}$	13,67	13,38	13,09	-7,84373	-7,82841	-7,81337	2,56(5)	2,77(5)	2,99(5)
		14,30156638[b]	14,01312181[b]	13,73436142[b]				6,87(5)[b]	7,56(5)[b]	8,32(5)[b]
$7g_{7/2}$	$4f_{5/2}$	2,56	2,51	2,45	-5,46779	-5,44888	-5,43018	4,33(8)	4,72(8)	5,16(8)
		2,56288822[a]	2,50635231[a]	2,45162997[a]				4,35(8)[a]	4,75(8)[a]	5,19(8)[a]
$7g_{7/2}$	$5f_{5/2}$	5,48	5,36	5,24	-5,53468	-5,51568	-5,49688	8,09(7)	8,84(7)	9,65(7)
		5,4830503[a]	5,34365375[a]	5,24402053[a]				8,20(7)[a]	4,82(7)[a]	9,79(7)[a]
$7g_{7/2}$	$6f_{5/2}$	14,46	14,14	13,83	-5,70329	-5,68438	-5,66567	7,89(6)	8,62(6)	9,41(6)
		14,4417378[a]	14,11887661[a]	13,8063742[a]				7,96(6)[a]	8,70(6)[a]	9,50(6)[a]
$7g_{7/2}$	$8f_{5/2}$	23,05	22,55	22,07	-7,43493	-7,41579	-7,39686	7,69(4)	8,39(4)	9,15(4)
$7g_{7/2}$	$9f_{5/2}$	13,56	13,27	12,98	-8,06098	-8,05068	-8,04076	5,25(4)	5,62(4)	6,01(4)

Tablo 3.6. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			$A_{ki}(s^{-1})$		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$7g_{9/2}$	$4f_{7/2}$	2,59	2,54	2,48	-4,69528	-4,67658	-4,65809	2,00(9)	2,18(9)	2,38(9)
		2,59487331[a]	2,53834456[a]	2,48362945[a]				1,98(9)[a]	2,16(9)[a]	2,36(9)[a]
$7g_{9/2}$	$5f_{7/2}$	5,55	5,43	5,31	-4,75715	-4,73824	-4,71953	3,79(8)	4,14(8)	4,51(8)
		5,54953601[a]	5,42808732[a]	5,31053516[a]				3,80(8)[a]	4,15(8)[a]	4,52(8)[a]
$7g_{9/2}$	$6f_{7/2}$	14,66	14,34	14,03	-4,92020	-4,90128	-4,88255	3,73(7)	4,07(7)	4,44(7)
		14,65655364[a]	14,33370079[a]	14,02120683[a]				3,74(7)[a]	4,09(7)[a]	4,46(7)[a]
$7g_{9/2}$	$8f_{7/2}$	23,05	22,56	22,07	-6,66055	-6,64140	-6,62245	3,43(5)	3,74(5)	4,08(5)
$7g_{9/2}$	$9f_{7/2}$	13,60	13,31	13,02	-7,16579	-7,15205	-7,13860	3,08(5)	3,32(5)31	3,57(5)
$7g_{9/2}$	$4f_{5/2}$	2,56	2,5	2,45	-5,62071	-5,60108	-5,58166	2,44(8)	2,67(8)	2,92(8)
		2,55896087[a]	2,50242644[a]	2,44770559[a]				2,42(8)[a]	2,65(8)[a]	2,90(8)[a]
$7g_{9/2}$	$5f_{5/2}$	5,47	5,35	5,23	-5,70728	-5,68801	-5,66895	4,38(7)	4,79(7)	5,23(7)
		5,46510596[a]	5,34365375[a]	5,22609801[a]				4,40(7)[a]	4,82(7)[a]	5,26(7)[a]
$7g_{9/2}$	$6f_{5/2}$	14,34	14,02	13,71	-5,89391	-5,87514	-5,85658	4,14(6)	4,52(6)	4,94(6)
		14,3179135[a]	13,99519298[a]	13,68283271[a]				4,16(6)[a]	4,55(6)[a]	4,97(6)[a]
$7g_{9/2}$	$8f_{5/2}$	23,36	22,86	22,38	-7,56193	-7,54161	-7,52149	5,59(4)	6,11(4)	6,68(4)
$7g_{9/2}$	$9f_{5/2}$	13,67	13,38	13,09	-8,06140	-8,04594	-8,03073	5,16(4)	5,59(4)	6,05(4)
$7s_{1/2}$	$2p_{3/2}$	0,47	0,46	0,45	-6,68792	-6,61109	-6,53728	3,15(9)	3,93(9)	4,88(9)
		0,467288[a]	0,45692739[a]	0,44689953[a]				2,50(10)[a]	2,77(10)[a]	3,06(10)[a]
$7s_{1/2}$	$3p_{3/2}$	1,17	1,14	1,12	-7,39782	-7,43403	-7,47497	9,77(7)	9,41(7)	8,96(7)
		1,17505039[a]	1,1488624[a]	1,12351787[a]				2,50(9)[a]	2,77(9)[a]	3,06(9)[a]
$7s_{1/2}$	$4p_{3/2}$	2,53	2,47	2,42	-6,76185	-6,75241	-6,74344	9,02(7)	9,64(7)	1,03(8)
		2,56018264[a]	2,50394109[a]	2,44952324[a]				3,50(8)[a]	3,87(8)[a]	4,27(8)[a]

Tablo 3.6. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			$A_{ki}(s^{-1})$		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$7s_{1/2}$	$5p_{3/2}$	5,49	5,37	5,25	-6,64219	-6,62581	-6,60971	2,52(7)	2,74(7)	2,98(7)
		5,64234436[a]	5,52258721[a]	5,40678419[a]				5,29(7)[a]	5,84(7)[a]	6,44(7)[a]
$7s_{1/2}$	$6p_{3/2}$	14,94	14,61	14,29	-6,62246	-6,60359	-6,58497	3,56(6)	3,89(6)	4,25(6)
		16,22662271[a]	15,92195338[a]	15,62832553[a]				5,32(6)[a]	5,86(6)[a]	6,44(6)[a]
$7s_{1/2}$	$7p_{3/2}$	432,02	421,17	410,83	-9,45784	-9,43427	-9,41137	3,1134	3,45858	3,83159
		127,29993943[a]	120,88883227[a]	114,8348747[a]				1276,6[a]	1610,6[a]	2029,1[a]
$7s_{1/2}$	$8p_{3/2}$	21,22	20,75	20,29	-6,81947	-6,80145	-6,78359	5,61(5)	6,12(5)	6,67(5)
		18,93421719[b]	18,42966486[b]	17,94086597[b]				3,97(5)[b]	4,21(5)[b]	4,45(5)[b]
$7s_{1/2}$	$9p_{3/2}$	12,86	12,57	12,29	-7,19245	-7,17828	-7,16427	6,48(5)	7,00(5)	7,56(5)
		11,96832702[b]	11,66840251[b]	11,37781603[b]				8,70(5)[b]	9,27(5)[b]	9,86(5)[b]
$8d_{3/2}$	$4f_{7/2}$	2,34	2,29	2,24	-8,41119	-8,41065	-8,41118	1,18(6)	1,24(6)	1,29(6)
		2,34414906[b]	2,29340625[b]	2,24429229[b]				7,26(6)[b]	8,02(6)[b]	8,85(6)[b]
$8d_{3/2}$	$5f_{7/2}$	4,50	4,4	4,31	-7,83029	-7,81605	-7,80214	1,22(6)	1,31(6)	1,42(6)
		4,51642606[b]	4,41887284[b]	4,32445245[b]				2,90(6)[b]	3,20(6)[b]	3,53(6)[b]
$8d_{3/2}$	$6f_{7/2}$	9,08	8,88	8,69	-7,57286	-7,55436	-7,53609	5,41(5)	5,89(5)	6,42(5)
		9,1367901[b]	8,94128465[b]	8,75206523[b]				8,37(5)[b]	9,22(5)[b]	1,01(6)[b]
$8d_{3/2}$	$7f_{7/2}$	23,55	23,05	22,56	-7,41587	-7,39541	-7,37518	1,15(5)	1,26(5)	1,38(5)
		23,91337717[b]	23,41863364[b]	22,93989514[b]				1,40(5)[b]	1,54(5)[b]	1,69(5)[b]
$8d_{3/2}$	$8f_{7/2}$	679,74	654,69	630,91	-9,99491	-9,95537	-9,91643	1,83(-1)	2,16(-1)	2,54(-1)
		475,81413572[b]	454,71435823[b]	434,74662549[b]				1,0602[b]	1,3009[b]	1,593[b]
$8d_{3/2}$	$9f_{7/2}$	31,64	30,93	30,24	-6,96043	-6,94319	-6,92617	9,12(4)	9,93(4)	1,08(5)
		31,04286812[b]	30,31807128[b]	29,61656045[b]				99281[b]	1,08(5)[b]	1,18(5)[b]

Tablo 3.6. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			$A_{ki}(s^{-1})$		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$8d_{3/2}$	$4f_{5/2}$			2,21			-9,87733			4,53(4)
				2,21491754[b]						4,58(6)[b]
$8d_{3/2}$	$5f_{5/2}$	4,45	4,35	4,26	-8,43582	-8,43474	-8,43452	3,09(5)	3,24(5)	3,39(5)
		4,46034642[b]	4,36275482[b]	4,26829552[b]				1,52(6)[b]	1,68(6)[b]	1,85(6)[b]
$8d_{3/2}$	$6f_{5/2}$	8,96	8,76	8,57	-7,94719	-7,93199	-7,91709	2,35(5)	2,54(5)	2,75(5)
		9,00403306[b]	8,80838384[b]	8,61901853[b]				4,46(5)[b]	4,90(5)[b]	5,39(5)[b]
$8d_{3/2}$	$7f_{5/2}$	23,06	22,56	22,07	-7,72083	-7,70171	-7,68282	5,96(4)	6,51(4)	7,11(4)
		23,34588428[b]	22,84983168[b]	22,36976194[b]				76019[b]	83536[b]	91714[b]
$8d_{3/2}$	$9f_{5/2}$	32,01	31,29	30,60	-7,17240	-7,15468	-7,13716	7,30(4)	7,95(4)	8,66(4)
		31,51032106[b]	30,78446834[b]	30,08189066[b]				81723[b]	89225[b]	97323[b]
$8d_{3/2}$	$2p_{1/2}$	0,40	0,39	0,38	-8,46354	-8,23063	-8,03780	3,52(7)	6,33(7)	1,04(8)
		0,39337373[b]	0,38298985[b]	0,37292528[b]				4,05(9)[b]	4,48(9)[b]	4,96(9)[b]
$8d_{3/2}$	$3p_{1/2}$	1,03	1,01	0,98	-7,77831	-7,79032	-7,80390	2,61(7)	2,66(7)	2,70(7)
		0,99202308[b]	0,96660654[b]	0,94197573[b]				2,12(8)[b]	2,33(8)[b]	2,56(8)[b]
$8d_{3/2}$	$4p_{1/2}$	2,15	2,1	2,05	-7,70469	-7,69640	-7,68846	7,12(6)	7,60(6)	8,11(6)
		2,05410348[b]	2,00243778[b]	1,95237572[b]				1,98(7)[b]	2,17(7)[b]	2,37(7)[b]
$8d_{3/2}$	$5p_{1/2}$	4,18	4,08	3,99	-7,79367	-7,77979	-7,76613	1,54(6)	1,66(6)	1,79(6)
		3,96820027[b]	3,8689399[b]	3,77276636[b]				2,51(6)[b]	2,72(6)[b]	2,95(6)[b]
$8d_{3/2}$	$6p_{1/2}$	8,40	8,21	8,03	-7,91178	-7,89529	-7,87899	2,89(5)	3,15(5)	3,42(5)
		7,87282318[b]	7,67374978[b]	7,48086867[b]				3,27(5)[b]	3,53(5)[b]	3,81(5)[b]
$8d_{3/2}$	$7p_{1/2}$	21,05	20,57	20,12	-8,05418	-8,03617	-8,01834	3,32(4)	3,62(4)	3,95(4)
		18,93421719[b]	18,42966486[b]	17,94086597[b]				27352[b]	29301[b]	31319[b]

Tablo 3.6. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			$A_{ki}(s^{-1})$		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$8d_{3/2}$	$9p_{1/2}$	33,55	32,8	32,08	-8,83001	-8,81299	-8,79622	4,38(3)	4,77(3)	5,18(3)
		36,91629569[b]	36,23491994[b]	35,57847659[b]				8635,6[b]	9508,8[b]	10458[b]
$8d_{5/2}$	$4f_{7/2}$	2,33	2,28	2,24	-7,78883	-7,79736	-7,80757	3,32(6)	3,40(6)	3,47(6)
		2,3363672[b]	2,2856101[b]	2,23648164[b]				2,35(7)[b]	2,58(7)[b]	2,83(7)[b]
$8d_{5/2}$	$5f_{7/2}$	4,48	4,39	4,29	-7,11648	-7,10499	-7,09387	4,23(6)	4,54(6)	4,86(6)
		4,48762762[b]	4,3900209[b]	4,29554621[b]				9,77(6)[b]	1,07(7)[b]	1,18(7)[b]
$8d_{5/2}$	$6f_{7/2}$	9,00	8,81	8,62	-6,83345	-6,81654	-6,79987	2,01(6)	2,19(6)	2,37(6)
		9,01969391[b]	8,82394105[b]	8,63447038[b]				2,93(6)[b]	3,21(6)[b]	3,51(6)[b]
$8d_{5/2}$	$7f_{7/2}$	23,04	22,54	22,06	-6,67015	-6,65095	-6,63196	4,48(5)	4,89(5)	5,33(5)
		23,12754857[b]	22,63040756[b]	22,14923085[b]				5,12(5)[b]	5,61(5)[b]	6,15(5)[b]
$8d_{5/2}$	$9f_{7/2}$	32,61	31,89	31,19	-6,07396	-6,05587	-6,03800	6,61(5)	7,21(5)	7,85(5)
		32,47529431[b]	31,74972646[b]	31,04743787[b]				7,18(5)[b]	7,84(5)[b]	8,55(5)[b]
$8d_{5/2}$	$2p_{3/2}$	0,46	0,45	0,44	-5,18557	-5,18012	-5,17525	3,49(10)	3,70(10)	3,91(10)
		0,455738[b]	0,44557737[b]	0,43574234[b]				8,78(10)[b]	9,57(10)[b]	1,04(11)[b]
$8d_{5/2}$	$3p_{3/2}$	1,11	1,08	1,06	-5,46804	-5,45706	-5,44645	3,09(9)	3,32(9)	3,56(9)
		1,10465179[b]	1,07971084[b]	1,05556908[b]				6,09(9)[b]	6,65(9)[b]	7,27(9)[b]
$8d_{5/2}$	$4p_{3/2}$	2,26	2,21	2,16	-5,70077	-5,68658	-5,67267	4,35(8)	4,70(8)	5,08(8)
		2,24803744[b]	2,19723208[b]	2,1480547[b]				6,88(8)[b]	7,52(8)[b]	8,22(8)[b]
$8d_{5/2}$	$5p_{3/2}$	4,34	4,25	4,15	-5,89628	-5,88022	-5,86439	7,48(7)	8,12(7)	8,81(7)
		4,32027754[b]	4,22257725[b]	4,12800772[b]				1,00(8)[b]	1,09(8)[b]	1,20(8)[b]
$8d_{5/2}$	$6p_{3/2}$	8,70	8,51	8,32	-6,06573	-6,04846	-6,03140	1,26(7)	1,37(7)	1,49(7)
		8,63092518[b]	8,43497445[b]	8,24530322[b]				1,48(7)[b]	1,62(7)[b]	1,76(7)[b]

Tablo 3.6. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			$A_{ki}(s^{-1})$		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$8d_{5/2}$	$7p_{3/2}$	21,91	21,41	20,94	-6,23266	-6,21462	-6,19678	1,36(6)	1,48(6)	1,61(6)
		21,56108632[b]	21,06346134[b]	20,58179386[b]				1,43(6)[b]	1,56(6)[b]	1,70(6)[b]
$8d_{5/2}$	$9p_{3/2}$	33,55	32,82	32,11	-7,07089	-7,05289	-7,03513	1,26(5)	1,37(5)	1,49(5)
		34,10809757[b]	33,38464122[b]	32,68449843[b]				1,77(5)[b]	1,94(5)[b]	2,13(5)[b]
$8d_{5/2}$	$2p_{1/2}$	0,40	0,39	0,38	-7,91157	-8,38454	-9,66484	8,37(7)	2,96(7)	1,63(6)
		0,39315399[b]	0,38277181[b]	0,37270899[b]				3,45(10)[b]	3,83(10)[b]	4,24(10)[b]
$8d_{5/2}$	$3p_{1/2}$	1,03	1,01	0,98	-6,60539	-6,61112	-6,61802	2,59(8)	2,68(8)	2,77(8)
		0,99062674[b]	0,96521892[b]	0,94059698[b]				1,49(9)[b]	1,64(9)[b]	1,79(9)[b]
$8d_{5/2}$	$4p_{1/2}$	2,15	2,1	2,05	-6,64263	-6,63394	-6,62563	5,50(7)	5,88(7)	6,27(7)
		2,04812575[b]	1,9964918[b]	1,94646212[b]				1,28(8)[b]	1,38(8)[b]	1,50(8)[b]
$8d_{5/2}$	$5p_{1/2}$	4,16	4,07	3,98	-6,77226	-6,75891	-6,74580	1,08(7)	1,17(7)	1,26(7)
		3,94595167[b]	3,84680442[b]	3,75074625[b]				1,51(7)[b]	1,62(7)[b]	1,75(7)[b]
$8d_{5/2}$	$6p_{1/2}$	8,34	8,15	7,96	-6,91691	-6,90130	-6,88589	1,94(6)	2,10(6)	2,28(6)
		7,78572941[b]	7,58715663[b]	7,39478523[b]				1,85(6)[b]	1,98(6)[b]	2,10(6)[b]
$8d_{5/2}$	$7p_{1/2}$	20,64	20,17	19,72	-7,08755	-7,07074	-7,05409	2,13(5)	2,32(5)	2,52(5)
		18,43817056[b]	17,93797888[b]	17,45359522[b]				1,42(5)[b]	1,49(5)[b]	1,56(5)[b]
$8d_{5/2}$	$8p_{1/2}$	404,02	392,19	380,91	-9,51401	-9,48473	-9,45604	2,08533	2,36741	2,68105
		150,41605099[b]	143,04359311[b]	136,07703962[b]				266,73[b]	334,21[b]	418,08[b]
$8d_{5/2}$	$9p_{1/2}$	34,63	33,88	33,15	-7,69380	-7,67514	-7,65673	5,63(4)	6,14(4)	6,69(4)
		38,95988239[b]	38,29892502[b]	37,66369888[b]				92134[b]	1,01(5)[b]	1,11(5)[b]
$8g_{7/2}$	$4f_{5/2}$	2,30	2,25	2,20	-5,74961	-5,73148	-5,71356	2,80(8)	3,05(8)	3,32(8)
$8g_{7/2}$	$5f_{5/2}$	4,42	4,32	4,23	-5,80107	-5,78261	-5,76436	6,75(7)	7,37(7)	8,03(7)
$8g_{7/2}$	$6f_{5/2}$	8,84	8,65	8,46	-5,93528	-5,91663	-5,89820	1,24(7)	1,35(7)	1,47(7)

Tablo 3.6. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			$A_{ki}(s^{-1})$		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$8g_{7/2}$	$7f_{5/2}$	22,31	21,81	21,33	-6,10245	-6,08374	-6,06523	1,32(6)	1,44(6)	1,58(6)
$8g_{7/2}$	$9f_{5/2}$	33,57	32,85	32,14	-7,65720	-7,63962	-7,62227	2,17(4)	2,36(4)	2,57(4)
$8g_{9/2}$	$4f_{7/2}$	2,33	2,28	2,23	-4,96585	-4,94764	-4,92966	1,33(9)	1,45(9)	1,58(9)
$8g_{9/2}$	$5f_{7/2}$	4,47	4,37	4,27	-5,01666	-4,99813	-4,97981	3,22(8)	3,51(8)	3,83(8)
$8g_{9/2}$	$6f_{7/2}$	8,93	8,74	8,55	-5,15014	-5,13142	-5,11290	5,92(7)	6,46(7)	7,04(7)
$8g_{9/2}$	$7f_{7/2}$	22,58	22,08	21,60	-5,31538	-5,29658	-5,27799	6,33(6)	6,91(6)	7,54(6)
$8g_{9/2}$	$9f_{7/2}$	33,59	32,86	32,15	-6,86159	-6,84361	-6,82585	1,02(5)	1,11(5)	1,20(5)
$8g_{9/2}$	$4f_{5/2}$	2,30	2,25	2,20	-5,89296	-5,87389	-5,85503	1,61(8)	1,76(8)	1,92(8)
$8g_{9/2}$	$5f_{5/2}$	4,41	4,31	4,22	-5,96359	-5,94465	-5,92592	3,73(7)	4,07(7)	4,44(7)
$8g_{9/2}$	$6f_{5/2}$	8,81	8,62	8,43	-6,11262	-6,09384	-6,07526	6,62(6)	7,23(6)	7,89(6)
$8g_{9/2}$	$7f_{5/2}$	22,13	21,63	21,15	-6,29531	-6,27679	-6,25848	6,90(5)	7,54(5)	8,22(5)
$8g_{9/2}$	$9f_{5/2}$	34,00	33,27	32,56	-7,76927	-7,75018	-7,73131	1,64(4)	1,79(4)	1,95(4)
$8s_{1/2}$	$2p_{3/2}$	0,46	0,45	0,44	-6,00494	-5,95297	-5,90206	1,58(10)	1,87(10)	2,20(10)
		0,45712301[b]	0,44696967[b]	0,43714214[b]				1,72(10)[b]	1,90(10)[b]	2,10(10)[b]
$8s_{1/2}$	$3p_{3/2}$	1,11	1,08	1,06	-7,58419	-7,48085	-7,38432	7,06(7)	9,38(7)	1,22(8)
		1,11282434[b]	1,08792262[b]	1,0638213[b]				1,82(9)[b]	2,01(9)[b]	2,22(9)[b]
$8s_{1/2}$	$4p_{3/2}$	2,27	2,22	2,17	-7,60422	-7,62461	-7,64747	1,61(7)	1,61(7)	1,60(7)
		2,28214516[b]	2,23150935[b]	2,18250683[b]				2,82(8)[b]	3,12(8)[b]	3,44(8)[b]
$8s_{1/2}$	$5p_{3/2}$	4,39	4,29	4,19	-7,11902	-7,10955	-7,10050	1,32(7)	1,41(7)	1,50(7)
		4,44803481[b]	4,35101716[b]	4,25715189[b]				5,28(7)[b]	5,84(7)[b]	6,44(7)[b]
$8s_{1/2}$	$6p_{3/2}$	8,87	8,68	8,48	-6,98599	-6,97013	-6,95453	4,37(6)	4,75(6)	5,14(6)
		9,15631788[b]	8,96353491[b]	8,77713536[b]				9,70(6)[b]	1,07(7)[b]	1,18(7)[b]

Tablo 3.6. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			$A_{ki}(s^{-1})$		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$8s_{1/2}$	$7p_{3/2}$	23,02	22,5	22,01	-6,93957	-6,92114	-6,90295	7,24(5)	7,90(5)	8,61(5)
		25,16886694[b]	24,70068814[b]	24,24956595[b]				1,12(6)[b]	1,23(6)[b]	1,35(6)[b]
$8s_{1/2}$	$8p_{3/2}$	740,37	723,13	706,71	-9,91661	-9,89537	-9,87479	3,69(-1)	4,06(-1)	4,45(-1)
		191,30163191[b]	181,69985599[b]	172,63220073[b]				287,72[b]	362,72[b]	456,63[b]
$8s_{1/2}$	$9p_{3/2}$	31,24	30,55	29,88	-7,16607	-7,14861	-7,13130	1,17(5)	1,27(5)	1,38(5)
		27,80343594[b]	27,06743086[b]	26,3544042[b]				90242[b]	95445[b]	1,01(5)[b]
$9d_{3/2}$	$4f_{7/2}$	2,18	2,14	2,09	-9,00627	-8,91554	-8,82977	3,45(5)	4,44(5)	5,65(5)
		2,1865883[b]	2,13915715[b]	2,09324826[b]				5,46(6)[b]	6,03(6)[b]	6,66(6)[b]
$9d_{3/2}$	$5f_{7/2}$	3,96	3,87	3,79	-9,06787	-9,10649	-9,15017	9,12(4)	8,72(4)	8,23(4)
		3,96583922[b]	3,87983015[b]	3,79658204[b]				2,39(6)[b]	2,64(6)[b]	2,91(6)[b]
$9d_{3/2}$	$6f_{7/2}$	7,10	6,95	6,80	-8,21574	-8,20853	-8,20184	2,01(5)	2,14(5)	2,27(5)
		7,13332608[b]	6,97924664[b]	6,8301156[b]				8,35(5)[b]	9,21(5)[b]	1,01(6)[b]
$9d_{3/2}$	$7f_{7/2}$	13,67	13,37	13,09	-7,88254	-7,86684	-7,85140	1,17(5)	1,27(5)	1,37(5)
		13,78226222[b]	13,48759045[b]	13,20239405[b]				2,41(5)[b]	2,65(5)[b]	2,92(5)[b]
$9d_{3/2}$	$8f_{7/2}$	34,22	33,49	32,78	-7,67883	-7,65962	-7,64064	2,98(4)	3,26(4)	3,55(4)
		34,91892026[b]	34,19738121[b]	33,49918826[b]				41077[b]	45153[b]	49588[b]
$9d_{3/2}$	$4f_{5/2}$	2,16	2,11	2,06	-7,86367	-7,81426	-7,76569	4,90(6)	5,74(6)	6,71(6)
		2,16103227[b]	2,113591[b]	2,06767186[b]				2,83(6)[b]	3,12(6)[b]	3,44(6)[b]
$9d_{3/2}$	$5f_{5/2}$	3,91	3,83	3,74	-8,92775	-8,84414	-8,76459	1,29(5)	1,63(5)	2,05(5)
		3,92253367[b]	3,8365012[b]	3,75322939[b]				1,25(6)[b]	1,38(6)[b]	1,52(6)[b]
$9d_{3/2}$	$6f_{5/2}$	7,03	6,87	6,72	-9,13408	-9,16324	-9,19592	2,48(4)	2,42(4)	2,35(4)
		7,13332608[b]	6,89800781[b]	6,74881545[b]				8,35(5)[b]	4,87(5)[b]	5,35(5)[b]

Tablo 3.6. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			$A_{ki}(s^{-1})$		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$9d_{3/2}$	$7f_{5/2}$	13,50	13,21	12,92	-8,32098	-8,31058	-8,30056	4,37(4)	4,68(4)	5,00(4)
		13,59184418[b]	13,29695525[b]	13,01153846[b]				1,29(5)[b]	1,42(5)[b]	1,56(5)[b]
$9d_{3/2}$	$8f_{5/2}$	33,57	32,84	32,13	-7,99857	-7,98097	-7,96360	1,48(4)	1,62(4)	1,76(4)
		34,10809757[b]	33,38464122[b]	32,68449843[b]				22381[b]	24583[b]	26978[b]
$9d_{3/2}$	$2p_{1/2}$	0,40	0,39	0,38	-6,33574	-6,28178	-6,22887	4,84(9)	5,77(9)	6,85(9)
		0,38867386[b]	0,37843289[b]	0,36850682[b]				2,87(9)[b]	3,18(9)[b]	3,51(9)[b]
$9d_{3/2}$	$3p_{1/2}$	1,00	0,98	0,95	-7,93532	-7,85781	-7,78403	1,93(7)	2,42(7)	3,01(7)
		0,96266728[b]	0,93809661[b]	0,9142856[b]				1,57(8)[b]	1,73(8)[b]	1,90(8)[b]
$9d_{3/2}$	$4p_{1/2}$	2,02	1,97	1,93	-9,35276	-9,46111	-9,59140	1,82(5)	1,49(5)	1,15(5)
		1,93210647[b]	1,88383347[b]	1,83705959[b]				1,59(7)[b]	1,74(7)[b]	1,89(7)[b]
$9d_{3/2}$	$5p_{1/2}$	3,70	3,62	3,54	-8,50301	-8,50462	-8,50682	3,82(5)	3,98(5)	4,14(5)
		3,53678274[b]	3,44934727[b]	3,36463391[b]				2,28(6)[b]	2,48(6)[b]	2,70(6)[b]
$9d_{3/2}$	$6p_{1/2}$	6,68	6,53	6,38	-8,37281	-8,36244	-8,35228	1,58(5)	1,70(5)	1,82(5)
		6,33879589[b]	6,18216713[b]	6,03041831[b]				3,83(5)[b]	4,14(5)[b]	4,47(5)[b]
$9d_{3/2}$	$7p_{1/2}$	12,79	12,5	12,22	-8,36469	-8,34972	-8,33492	4,40(4)	4,77(4)	5,16(4)
		11,96832702[b]	11,66840251[b]	11,37781603[b]				60808[b]	65432[b]	70273[b]
$9d_{3/2}$	$8p_{1/2}$	31,03	30,33	29,66	-8,41181	-8,39432	-8,37700	6,71(3)	7,31(3)	7,96(3)
		27,80343594[b]	27,06743086[b]	26,3544042[b]				5884,8[b]	6284[b]	6694,2[b]
$9d_{5/2}$	$4f_{7/2}$	2,18	2,13	2,09	-7,88733	-7,81112	-7,73809	3,03(6)	3,77(6)	4,66(6)
		2,18183564[b]	2,13439627[b]	2,08847903[b]				1,76(7)[b]	1,93(7)[b]	2,12(7)[b]
$9d_{5/2}$	$5f_{7/2}$	3,95	3,86	3,78	-8,70173	-8,79794	-8,91358	1,42(5)	1,19(5)	9,51(4)
		3,95023272[b]	3,86419716[b]	3,78092218[b]				8,00(6)[b]	8,78(6)[b]	9,62(6)[b]

Tablo 3.6. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			$A_{ki}(s^{-1})$		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$9d_{5/2}$	$6f_{7/2}$	7,07	6,92	6,77	-7,52026	-7,51786	-7,51618	6,71(5)	7,05(5)	7,39(5)
		7,08299265[b]	6,92882258[b]	6,77959953[b]				2,89(6)[b]	3,17(6)[b]	3,47(6)[b]
$9d_{5/2}$	$7f_{7/2}$	13,56	13,27	12,98	-7,13901	-7,12523	-7,11173	4,39(5)	4,73(5)	5,10(5)
		13,59559568[b]	13,30053372[b]	13,01494106[b]				8,58(5)[b]	9,41(5)[b]	1,03(6)[b]
$9d_{5/2}$	$8f_{7/2}$	33,57	32,84	32,13	-6,92311	-6,90507	-6,88726	1,18(5)	1,28(5)	1,40(5)
		33,74505392[b]	33,01994055[b]	32,31811257[b]				1,52(5)[b]	1,67(5)[b]	1,83(5)[b]
$9d_{5/2}$	$2p_{3/2}$	0,45	0,44	0,43	-6,36582	-6,43519	-6,51606	2,37(9)	2,11(9)	1,83(9)
		0,44952751[b]	0,43950716[b]	0,42980792[b]				6,22(10)[b]	6,78(10)[b]	7,39(10)[b]
$9d_{5/2}$	$3p_{3/2}$	1,07	1,05	1,02	-6,19005	-6,20292	-6,21752	6,26(8)	6,36(8)	6,44(8)
		1,06885865[b]	1,04474593[b]	1,02140585[b]				4,50(9)[b]	4,92(9)[b]	5,37(9)[b]
$9d_{5/2}$	$4p_{3/2}$	2,11	2,06	2,02	-6,20535	-6,20181	-6,19888	1,55(8)	1,64(8)	1,73(8)
		2,10461094[b]	2,05712776[b]	2,01116612[b]				5,46(8)[b]	5,97(8)[b]	6,52(8)[b]
$9d_{5/2}$	$5p_{3/2}$	3,84	3,75	3,67	-6,28581	-6,27559	-6,26571	3,91(7)	4,18(7)	4,48(7)
		3,81998161[b]	3,73386767[b]	3,65051324[b]				8,98(7)[b]	9,81(7)[b]	1,07(8)[b]
$9d_{5/2}$	$6p_{3/2}$	6,89	6,73	6,58	-6,37981	-6,36606	-6,35256	9,78(6)	1,06(7)	1,14(7)
		6,84101271[b]	6,68669896[b]	6,53733027[b]				1,68(7)[b]	1,83(7)[b]	2,00(7)[b]
$9d_{5/2}$	$7p_{3/2}$	13,16	12,87	12,59	-6,47310	-6,45714	-6,44141	2,16(6)	2,34(6)	2,54(6)
		13,03872659[b]	12,74336692[b]	12,45747253[b]				2,96(6)[b]	3,23(6)[b]	3,53(6)[b]
$9d_{5/2}$	$8p_{3/2}$	32,08	31,36	30,67	-6,57498	-6,55750	-6,54022	2,88(5)	3,13(5)	3,41(5)
		31,51032106[b]	26,32445232[b]	30,08189066[b]				3,26(5)[b]	31078[b]	3,87(5)[b]
$9d_{5/2}$	$2p_{1/2}$	0,40	0,39	0,38	-5,37849	-5,32190	-5,26650	2,93(10)	3,51(10)	4,19(10)
		0,38852342[b]	0,37828362[b]	0,36835873[b]				2,45(10)[b]	2,72(10)[b]	3,02(10)[b]

Tablo 3.6. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			$A_{ki}(s^{-1})$		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$9d_{5/2}$	$3p_{1/2}$	1,00	0,98	0,95	-7,03964	-6,95208	-6,86946	1,01(8)	1,30(8)	1,65(8)
		0,96174496[b]	0,93717988[b]	0,91337458[b]				1,11(9)[b]	1,22(9)[b]	1,34(9)[b]
$9d_{5/2}$	$4p_{1/2}$	2,01	1,97	1,92	-8,13975	-8,22552	-8,32594	1,99(6)	1,71(6)	1,42(6)
		1,92839475[b]	1,88014027[b]	1,83338529[b]				1,03(8)[b]	1,12(8)[b]	1,21(8)[b]
$9d_{5/2}$	$5p_{1/2}$	3,70	3,61	3,53	-7,46061	-7,46306	-7,46618	2,82(6)	2,93(6)	3,05(6)
		3,52436516[b]	3,43698539[b]	3,3523289[b]				1,40(7)[b]	1,51(7)[b]	1,62(7)[b]
$9d_{5/2}$	$6p_{1/2}$	6,65	6,5	6,36	-7,36034	-7,35104	-7,34199	1,10(6)	1,17(6)	1,25(6)
		6,29901931[b]	6,14257027[b]	5,99100485[b]				2,22(6)[b]	2,38(6)[b]	2,54(6)[b]
$9d_{5/2}$	$7p_{1/2}$	12,69	12,41	12,13	-7,37096	-7,35701	-7,34326	2,94(5)	3,17(5)	3,43(5)
		11,82731141[b]	11,52814034[b]	11,2383213[b]				3,35(5)[b]	3,55(5)[b]	3,76(5)[b]
$9d_{5/2}$	$8p_{1/2}$	30,49	29,8	29,13	-7,44012	-7,42369	-7,40743	4,34(4)	4,72(4)	5,13(4)
		27,05409544[b]	26,32445232[b]	25,61786875[b]				29691[b]	31078[b]	32402[b]
$9d_{5/2}$	$9p_{1/2}$	688,41	669,79	652,02	-9,97214	-9,94554	-9,91953	2,50(-1)	2,81(-1)	3,15(-1)
		215,17754151[b]	204,6569398[b]	194,71502079[b]				72,274[b]	90,495[b]	113,13[b]
$9g_{7/2}$	$4f_{5/2}$	2,15	2,11	2,06	-6,05100	-6,03523	-6,01971	1,60(8)	1,73(8)	1,88(8)
$9g_{7/2}$	$5f_{5/2}$	3,90	3,81	3,73	-6,07866	-6,06196	-6,04549	4,57(7)	4,97(7)	5,40(7)
$9g_{7/2}$	$6f_{5/2}$	6,98	6,83	6,68	-6,18932	-6,17197	-6,15485	1,11(7)	1,20(7)	1,31(7)
$9g_{7/2}$	$7f_{5/2}$	13,34	13,05	12,76	-6,31579	-6,29794	-6,28030	2,26(6)	2,47(6)	2,69(6)
$9g_{7/2}$	$8f_{5/2}$	32,59	31,86	31,16	-6,45767	-6,43938	-6,42131	2,74(5)	2,99(5)	3,25(5)
$9g_{9/2}$	$4f_{7/2}$	2,18	2,13	2,08	-5,22779	-5,21097	-5,19438	8,32(8)	9,04(8)	9,81(8)
$9g_{9/2}$	$5f_{7/2}$	3,94	3,85	3,77	-5,26725	-5,24986	-5,23270	2,32(8)	2,53(8)	2,75(8)
$9g_{9/2}$	$6f_{7/2}$	7,04	6,89	6,74	-5,38560	-5,36779	-5,35019	5,53(7)	6,02(7)	6,55(7)
$9g_{9/2}$	$7f_{7/2}$	13,46	13,16	12,88	-5,51786	-5,49968	-5,48172	1,12(7)	1,22(7)	1,33(7)

Tablo 3.6. (Devamı)

Geçişler		Dalga Boyu (Å)			log(*gf*)			$A_{ki}(s^{-1})$		
		Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)	Pa^{90+} (Z=91)	U^{91+} (Z=92)	Np^{92+} (Z=93)
$9g_{9/2}$	$8f_{7/2}$	32,94	32,21	31,51	-5,66386	-5,64537	-5,62710	1,33(6)	1,45(6)	1,59(6)
$9g_{9/2}$	$4f_{5/2}$	2,15	2,1	2,06	-6,18004	-6,16296	-6,14612	9,51(7)	1,03(8)	1,12(8)
$9g_{9/2}$	$5f_{5/2}$	3,90	3,81	3,73	-6,22847	-6,21101	-6,19378	2,60(7)	2,83(7)	3,07(7)
$9g_{9/2}$	$6f_{5/2}$	6,97	6,82	6,67	-6,35398	-6,33625	-6,31873	6,08(6)	6,62(6)	7,20(6)
$9g_{9/2}$	$7f_{5/2}$	13,30	13	12,72	-6,49336	-6,47539	-6,45764	1,21(6)	1,32(6)	1,44(6)
$9g_{9/2}$	$8f_{5/2}$	32,33	31,61	30,91	-6,64999	-6,63190	-6,61401	1,43(5)	1,56(5)	1,70(5)
$9s_{1/2}$	$2p_{3/2}$	0,45	0,44	0,43	-5,38630	-5,34355	-5,30135	6,77(10)	7,82(10)	9,01(10)
		0,45046859[b]	0,44045305[b]	0,43075876[b]				1,23(10)[b]	1,36(10)[b]	1,50(10)[b]
$9s_{1/2}$	$3p_{3/2}$	1,07	1,05	1,02	-6,25877	-6,21055	-6,16321	1,60(9)	1,87(9)	2,18(9)
		1,07419454[b]	1,05010658[b]	1,02679204[b]				1,34(9)[b]	1,48(9)[b]	1,64(9)[b]
$9s_{1/2}$	$4p_{3/2}$	2,12	2,07	2,02	-7,41075	-7,34187	-7,27555	2,89(7)	3,54(7)	4,32(7)
		1,93210647[b]	2,07801512[b]	2,03215578[b]				1,91(8)[b]	2,45(8)[b]	2,70(8)[b]
$9s_{1/2}$	$5p_{3/2}$	3,86	3,77	3,69	-8,93918	-9,07975	-9,25803	2,58(5)	1,95(5)	1,35(5)
		3,88902225[b]	3,80325626[b]	3,72026061[b]				4,63(7)[b]	5,11(7)[b]	5,64(7)[b]
$9s_{1/2}$	$6p_{3/2}$	6,95	6,79	6,64	-7,69718	-7,69571	-7,69489	1,39(6)	1,46(6)	1,53(6)
		7,06564665[b]	6,9125508[b]	6,76443842[b]				1,06(7)[b]	1,17(7)[b]	1,29(7)[b]
$9s_{1/2}$	$7p_{3/2}$	13,39	13,09	12,81	-7,40626	-7,39301	-7,38004	7,30(5)	7,87(5)	8,48(5)
		13,87977432[b]	13,58954678[b]	13,30895233[b]				2,23(6)[b]	2,46(6)[b]	2,71(6)[b]
$9s_{1/2}$	$8p_{3/2}$	33,47	32,73	32,01	-7,26986	-7,25245	-7,23528	1,60(5)	1,74(5)	1,89(5)
		36,91629569[b]	36,23491994[b]	35,57847659[b]				2,84(5)[b]	3,13(5)[b]	3,43(5)[b]

3.3. Tartışma

Öncelikli olarak hidrojen benzeri Pa, U ve Np'nin seviye yapılarını belirlemek için gerçekleştirilen bu çalışmada, seviye enerjilerinin yanında teknolojide oldukça önemli E1, E2, M1 ve M2 geçişlerinin dalga boyu, ağırlıklı salınıcı şiddetleri ve geçiş olasılıkları da hesaplanmıştır. Ulaşılabilir kaynaklardaki az sayıdaki teorik ve deneysel veriler ile yapılan karşılaştırma sonucunda; MCHF yöntemiyle elde edilen verilerin diğer sonuçlar ile oldukça uyumlu olduğu özellikle düşük seviyeler ve atom numarasının azalması durumunda uyumun arttığı gözlenmiştir. Bu çalışma ile ilk defa sunulan $8g_{7/2}$, $8g_{9/2}$, $9g_{7/2}$ ve $9g_{9/2}$ verilerin ve diğerlerinin sonraki çalışmalar yapılacak için yararlı olacağı düşünülmektedir.

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