

# Table of nuclear magnetic dipole and electric quadrupole moments ☆

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## Abstract

The table is a compilation of experimental measurements of static magnetic dipole and electric quadrupole moments of ground states and excited states of atomic nuclei throughout the periodic table. To aid identification of the states, their excitation energy, half-life, spin, and parity are given, along with a brief indication of the method and any reference standard used in the particular measurement. The literature search covers the period to late 2004. Many of the entries prior to 1988 follow those in Raghavan [At. Data Nucl. Data Tables 42 (1989) 189].

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## 1. Introduction

The table comprises a listing of measured magnetic dipole and electric quadrupole moments of ground states and excited states of atomic nuclei. Results obtained by all experimental methods are included and the literature search covers the period approximately up to the end of November 2004. The table includes many listings from the most recent previous compilation [1], mainly without change, but amended where appropriate. To assist in definitive identification of the nuclear state involved, the table includes the energy (in keV), half-life, and spin/parity of the state, taken either from the authors or from recent compilations. The table follows its predecessors in listing also any reference isotope and state involved in extraction of the quoted moment from experiment. The method used in the experiment is given, although for all details of the method reference should be made to the original publication. References are given in Table 1 in the ENSDEF keyword format (as used in the NNDC Nuclear Data compilation) and a full listing of authors and journal references follows the table. A listing of abbreviations used to identify methods is given following the explanation of the table. Some comments on the results are made using abbreviations given in the table entry. The abbreviations used for these comments are also listed following the explanation below.

## 2. Policies followed in the compilation

### 2.1. Signs

Signs are given when the sign can be determined from experimental data. Where the sign is not given by the measurement, no sign is given in the table, although it

can sometimes be inferred either from systematics or from the magnitude of the result.

### 2.2. Results and uncertainties

Experimental values and their associated errors are as given by the authors subject to a policy of limiting significant figures. Numerical errors with digits above 15 have been rounded to 2 and results have been rounded to give no more significant figures than the rounded error would allow. Thus, a published value 0.953(65) has been rounded to 0.95(7) and 0.25(16) rounded to 0.3(2).

### 2.3. Magnetic dipole moments

The fundamental reference is to the adopted proton moment +2.79284734(3) nuclear magnetons (nm), after diamagnetic correction, based on the most recent recommended values for physical constants [2]. This has been revised downward since the last compilation [1] by 0.018 ppm. Other subsidiary dipole moment standards are set using high precision experimental ratios of nuclear magnetic resonance frequencies for heavier stable nuclei ( $^{11}\text{B}$ ,  $^{14}\text{N}$ ,  $^{35}\text{Cl}$ ,  $^{45}\text{Sc}$ , and  $^{111}\text{Cd}$ ), and from optical pumping frequency for  $^{199}\text{Hg}$ , compared to that of the proton or deuteron. References to these are given where they appear in the table.

Corrections for diamagnetism, Knight shift, paramagnetism, and hyperfine anomaly are noted by annotations “d, K, p,” or “ha,” respectively, after the entry when they have been taken into consideration by authors, either by explicit corrections or by allowance in quoted uncertainties.

The diamagnetic correction merits further comment. This correction is applicable under any circumstance that a magnetic field is applied to the nucleus under study and the nucleus is situated in a medium subject

to diamagnetism—that is all media other than vacuum. Diamagnetism describes the polarization of the medium whereby the field as experienced by the nucleus is reduced. This effect leads to a reduction in the magnetic dipole interaction energy and an apparent reduction in the nuclear magnetic dipole moment if the full applied magnetic field strength is used without correction.

Many experimental methods use “internal” or “transient” fields produced by electrons in the vicinity of the nucleus. Such internal fields are determined through their measured interaction energy with nuclei having known magnetic dipole moments. They are not subject to diamagnetic correction, although they do require correction for any hyperfine anomaly between the isotope used for calibrating the field and the isotope under study. However, if there is any additional external applied field used, then this component of the total field at the nucleus is subject to the diamagnetic correction.

Several previous tabulation compilers have apparently applied diamagnetic corrections and have included listings of diamagnetic correction factors due to Johnson and co-workers [3]. It should be stressed that the tabulated corrections apply only to neutral atoms, assumed spherical, and are not generally applicable, for example, to nuclei implanted into planar nonmagnetic foils and subject to applied magnetic fields. All post-1989 magnetic moment entries in the table are unmodified published values.

#### 2.4. Electric quadrupole moments

These are listed in units of barns ( $1 \text{ b} = 10^{-28} \text{ m}^2$ ). Corrections relating to electric field gradient shielding caused by polarization of atomic electrons, normally known as Sternheimer corrections, are indicated by the annotation “st” after the entry. The Sternheimer correc-

tion, which can be positive (shielding) or negative (anti-shielding) and can be large, is difficult to calculate with high accuracy, even for different states of the same atom or ion. This is the cause of several apparently large discrepancies between reported, uncorrected, electric quadrupole moments listed in the table.

Where two values of  $Q$  are given based on CER experiments, the first represents the value assuming constructive interference between the matrix elements and the second assumes destructive interference.

#### Acknowledgments

The author acknowledges help and advice from many fellow scientists in the field of hyperfine interactions and nuclear moments during the preparation and checking of the table. The table could not have been produced without extensive assistance at various stages of production by staff of the National Nuclear Data Center, Brookhaven National Laboratory, in particular Charles Dunford, Tom Burrows, and David Winchell. The Nuclear Data Project at the Oak Ridge National Laboratory provided the library in which much of the work was done, with help from Murray Martin and Mary Ruth Lay. Computing assistance from Chiara Mazzocchi was very helpful at a vital stage. Finally, thanks are due to Richard A. Meyer who initiated the undertaking, and to Jirina Rikovska Stone for her unfailing assistance and encouragement.

#### References

- [1] P. Raghavan, *At. Data Nucl. Data Tables* 42 (1989) 189.
- [2] P.J. Mohr, B.N. Taylor, *Rev. Mod. Phys.* 72 (2000) 351.
- [3] W.R. Johnson, Dietmar Kolb, K.-N. Huang, *At. Data Nucl. Data Tables* 28 (1983) 333 and references therein.

## Explanation of Table

**Table 1. Table of nuclear magnetic dipole and electric quadrupole moments**

Nucleus	Identifies the nucleus by mass number $A$ and atomic number $Z$ , with its chemical symbol. This is given once for each nucleus. Nuclei are grouped by element in increasing sequence of atomic number and by increasing mass number for each element.
$E$ (level)	Gives the energy of the state on which the measurement is made, rounded to the nearest kilovolt, 0 being the ground state. Where placement of the level with respect to the ground state is unknown, this is denoted by the addition of an offset $x$ or $y$ .
$\tau_{1/2}$	Gives the half-life $\tau$ of the state: units: y, years; d, days; h, hours; m, minutes; s, seconds; ms, milliseconds ( $10^{-3}$ s); $\mu$ s, microseconds ( $10^{-6}$ s); ns, nanoseconds ( $10^{-9}$ s); ps, picoseconds ( $10^{-12}$ s); and fs, femtoseconds ( $10^{-15}$ s).
$I^\pi$	Gives the spin ( $I$ ) and parity ( $\pi$ ) of the state. Uncertain values are given in brackets. Where the measurement was made on unresolved states, the average spin is given as $I_{av}$ .
$\mu$ (nm) <sup>*</sup>	Gives the measured nuclear magnetic dipole moment $\mu$ in units of the nuclear magneton $\mu_N$ (nm). No sign is given if it was not determined by the experiment. The uncertainty in the result is given in brackets, subject to the policy declared in Section 1. Thus 1.432(8) means a value of 1.432 nm with uncertainty 0.008 nm and of unknown sign. In some cases, where the spin of the level is unknown, the nuclear $g$ -factor, $g = \mu/I$ , is given. Where several states were unresolved, the average $g$ -factor is given as $g_{avge}$ . An entry of the form $g_{6+}/g_{2+}$ gives the ratio of the $g$ -factors of two states in a band. For high spin bands in even–even nuclei in some cases the spin dependence of the $g$ -factor is approximately given by $g(I) = g_0[1 + \alpha I^2]$ , where $I$ is the spin of the state and $g_0 \sim g_{2+}$ . The fitted value of $\alpha$ is given.
$Q$ (b) <sup>*</sup>	Gives the measured nuclear electric quadrupole moment $Q$ in units of the barn ( $1 \text{ b} = 10^{-28} \text{ m}^2$ ). No sign is given if it was not determined by the experiment. The uncertainty in the result is given in brackets, subject to the policy declared in Section 1. Thus +1.27(10) means a value of +1.27 b with an uncertainty of 0.10 b.
Ref. Std.	In this column any reference standard upon which the listed result depends is given. Often the reference state has been used to obtain the value of a static magnetic field or an electric field gradient which is then used to determine the quoted result. Any subsequent change in the value of the standard will affect the listed result.
Method	The method used in the measurement is briefly identified here. A list of abbreviations used follows this explanation. In view of the great proliferation of specialized methods, this method description is limited and, for detailed information, reference should be made to the original publication. Where there has been re-evaluation, by the tabulator or by subsequent referenced authors, of the original referenced result, usually associated with change to the reference standard, this is denoted by $R$ .
Reference	The NSR keyword reference is given. A complete listing of references follows the table. In the few cases where no NSR keyword has been assigned, or it is not known, the same format has been used with the last two digits replaced by ‘99’ and the reference included in the listing.

<sup>\*</sup>Certain entries have additional annotations relating to whether or not specific corrections have been made. These annotations are discussed under the magnetic dipole moment and electric quadrupole moment sections of the policies given in Section 1. The abbreviations used are given below.

## Abbreviations relating to corrections applied to measurements in the table

- a Requires no Sternheimer correction.
- d Corrected for diamagnetism.
- e No estimate of uncertainty given by authors.
- K Corrected for Knight shift.
- p Corrected for paramagnetism.
- st A Sternheimer shielding correction has been made by the authors.
- # This result uses an estimated hyperfine field with no error given.

Experimental methods		IMPAC	Perturbed angular correlation after ion implantation
AB	Atomic beam magnetic resonance—thermal beam	IMPAD	Perturbed angular distribution after ion implantation
AB/D	Atomic beam magnetic resonance (direct moment measurement)	Ka-X	Kaonic X-ray hyperfine structure
ABLDF	Atomic beam with laser double resonance detection	LEMS	Level mixing spectroscopy
ABLFS	Atomic beam with laser fluorescence spectroscopy	LMR	Level Mixing resonance on oriented nuclei
ABLS	Atomic beam laser spectroscopy	LRDRS	Laser RF double resonance spectroscopy
$\beta$ -NMR	NMR of in-beam polarised nuclei with $\beta$ asymmetry detection	LRFS	Laser resonance fluorescence spectroscopy
$\beta$ -NMR/OP	NMR of nuclei polarized by optical pumping with $\beta$ asymmetry detection	LRIMS	Laser resonance ionization mass spectroscopy
$\beta$ -NNQR	Nuclear quadrupole resonance with $\beta$ detection	LRIS	Laser resonance ionization spectroscopy
B(E2)	Value based on measured E2 transition probability	LRS	Laser resonance spectroscopy
BFNO	Brute force nuclear orientation	LRSRD	Laser resonance spectroscopy with radioactive detection
BFNMR/ON	Nuclear magnetic resonance on Brute force oriented nuclei	MA	Microwave absorption in gases
CDPAC	Constant-delay perturbed angular correlation	MAPON	Multiple adiabatic passage NMR on oriented nuclei
CEAD	Integral perturbed angular distribution after Coulomb excitation	MB	Molecular beam magnetic resonance
CER	Coulomb excitation reorientation	MCHF	Multiconfigurational Hartree–Fock calculated efg's used to extract $Q$
CERP	Precession of Coulomb excitation reorientation	ME	Mossbauer effect
CETD	TDPAD following Coulomb excitation	M/N	Maser/nuclear magnetic resonance frequency comparison
CFBLS	Collinear fast beam laser spectroscopy—accelerated beam	MS	Molecular spectroscopy
CFBLS/ $\beta$ -NMR	Collinear fast beam laser spectroscopy: NMR with $\beta$ detection	Mu-X	Muonic X-ray hyperfine structure
CIAN	Coulomb interaction of aligned nuclei	N	Nuclear magnetic resonance
CLS	Resonance cell laser spectroscopy	NMR	Nuclear magnetic resonance
CRDTF	Coincident recoil distance transient field	NMR/AC	Nuclear magnetic resonance detected using angular correlation
ENDOR	Electron-nuclear double resonance	NMR/AD	Nuclear magnetic resonance detected using angular distribution
EPR	Electron paramagnetic resonance	NMR/ME	Nuclear magnetic resonance detected using the Mossbauer effect
ES	Electron scattering	NMR/ON	Nuclear magnetic resonance on oriented nuclei
FDPAC	Time differential perturbed angular correlation of fission fragments	NMR/ON( $\beta$ )	Nuclear magnetic resonance on oriented nuclei with $\beta$ detection
IAPAD	Integral attenuation of perturbed angular distribution	NMR/ON(X)	Nuclear magnetic resonance on oriented nuclei with X-ray detection
IBSQB	Quantum beats after surface interaction at grazing incidence	NMR/OP	NMR detected using optically pumped ions
IPAC	Integral perturbed angular correlation	NMR/OP( $\beta$ )	NMR using optically pumped ions with $\beta$ detection
IPAD	Integral perturbed angular distribution	NO/CP	$\gamma$ circular polarization measured from oriented nuclei
		NO/ME	Mossbauer effect on oriented nuclei
		NO/S	Static nuclear orientation with $\gamma$ detection
		NO/ $\beta$ S	Static nuclear orientation with $\beta$ detection

NO/D	Dynamic nuclear orientation	R	Re-evaluated data, or (for revised reference standard) adjusted by tabulator
O	Optical spectroscopy		
OD	Optical double resonance		
OGLS	Optogalvanic laser spectroscopy	RENO	Reorientation nuclear orientation
OL	Optical level crossing	RIGV	Recoil into gas or vacuum
OP/ $\beta$ -NMR	Optical pumping with NMR using $\beta$ detection	RIV/D	Recoil into vacuum, differential method
OP/RD	Optical pumping with radiative detection	SOPAD	Stroboscopic observation of perturbed angular distribution
PhPi	Pion photoproduction near threshold	TDPAC	Time dependent perturbed angular correlation
Pi-X	Pionic X-ray hyperfine structure	TDPAD	Time dependent perturbed angular distribution
PMR	Paramagnetic resonance	TF	Transient field integral perturbed angular correlation
PPDAC	Perturbed polarization-directional angular correlations	TFL	Tilted foil hyperfine field integral perturbed angular correlation
PPR	Proton pick-up reaction: spectroscopic factors	TFLD	Tilted foil time differential perturbed $\gamma$ angular distribution
Q	Quadrupole resonance	TIS	Trapped ion spectroscopy
QI-NMR/ON	Quadrupole interaction resolved NMR on oriented nuclei	TR/OLNO	Time resolved on-line nuclear orientation
QIR	Quadrupole interaction deduced from relaxation time	XHFS	X-ray hyperfine shift

Table 1

Table of nuclear magnetic dipole and electric quadrupole moments. See page 78 for Explanation of Table

Nucleus	$E$ (level)	$\tau_{1/2}$	$I^\pi$	$\mu$ (nm) <sup>*</sup>	$Q$ (b)	Ref. Std.	Method	Reference
$^1_0\text{n}$	0	10.6 m	$1/2^+$	$-1.9130427(5)$ d			N, R	2000Mo36
$^1_1\text{H}$	0	Stable	$1/2^+$	$+2.79284734(3)$ d			M/N, R	2000Mo36
$^2_1\text{H}$	0	Stable	$1^+$	$+0.857438228(9)$ d		$^1_1\text{H}$	N, R	2000Mo36
					$+0.00286(2)$ st $0.0028(2)$		MB, R CIAN	1979Bi14 1985Ka05
$^3_1\text{H}$	0	12.33 y	$1/2^+$	$+2.97896244(4)$		$^1_1\text{H}$	N, R	1977Ne16
$^3_2\text{He}$	0	Stable	$1/2^+$	$-2.12749772(3)$		$^1_1\text{H}$	N, R	2000Mo36
$^6_3\text{Li}$	0	Stable	$1^+$	$+0.8220473(6)$ $+0.822567(3)$		$^2_1\text{H}$	AB/D N	1974Be50 1968Lu07 1967Lu06 1954Wa37
					$-0.00082(2)$ a $-0.00083(8)$ st	$^7_3\text{Li}$ $^7_3\text{Li}$	MB, R MB, R	1998Ce04 1984Su09
$^7_3\text{Li}$	0	Stable	$3/2^-$	$+3.256427(2)$ $+3.2564625(4)$		$^2_1\text{H}$	AB/D N	1974Be50 1968Lu07 1967Lu06
					$-0.0406(8)$ a $-0.0406$ st $-0.0370(8)$ $-0.041(6)$ $-0.059(8)$ $-0.040(11)$  $-0.0400(6)$ $-0.0400(3)$ $-0.0406(8)$		MB, R MB, R CIAN OD, OL OL CER  CER CER R	1998Ce04 1984Su09 1985We08 1975Or01 1978Na22 1984Ve03 1984Ve08 1991Vo06 1991Vo06 1989Ba80
$^8_3\text{Li}$	0	842 ms	$2^+$	$+1.65340(2)$		$^1_1\text{H}$	$\beta$ -NMR	1978Wi13 1962Co08
					$0.0317(4)$ $0.0287(7)$ $0.0327(6)$ Sign positive	$^7_3\text{Li}$ $^7_3\text{Li}$ $^7_3\text{Li}$ $^6,7_3\text{Li}$	$\beta$ -NMR CFBLS/ $\beta$ -NMR $\beta$ -NQR NMR	1977Du06 1988Ar17 1992Mi18 1994Ja05
$^9_3\text{Li}$	0	178 ms	$3/2^-$	$3.4391(6)$ $3.434(5)$		$^1_1\text{H}$ $^8_3\text{Li}$	$\beta$ -NMR CFBLS/ $\beta$ -NMR	1983Co11 1988Ar17
					$0.0253(9)$ $0.036(7)$ st	$^7_3\text{Li}$ $^7_3\text{Li}$	CFBLS/ $\beta$ -NMR $\beta$ -NMR	1988Ar17 1983Co11
$^{11}_3\text{Li}$	0	7.7 ms	$3/2^-$	$3.668(3)$		$^8_3\text{Li}$ $^3_3\text{Li}$	CFBLS/ $\beta$ -NMR OP/ $\beta$ -NMR	1987Ar22 1992Ma12
$^7_4\text{Be}$	0	53.3 d	$3/2^-$	$-1.398(15)$		$^4_4\text{Be}$	LRIS	1998KaZN
$^9_4\text{Be}$	0	Stable	$3/2^-$	$-1.177432(3)$ d $-1.1778(9)$ $-1.17749(2)$		$^1_1\text{H}$	R N, OP/RD N	1983It03 1976We17 1949Di25 1951Al11
					$+0.0529(4)$ $+0.053(3)$ st		R AB	1991Su05 1967BI09
$^{11}_4\text{Be}$	0	13.8 s	$3/2^-$	$-1.6814(13)$ $-1.6816(8)$		$^8_3\text{Li}$ $^8_3\text{Li}$	$\beta$ -NMR $\beta$ -NMR	1998KaZN 1999Ge18
$^8_5\text{B}$	0	0.77 s	$2^+$	$1.0355(3)$ $1.03579(5)$ d, K		$^{11}_5\text{B}$ $^{11}_5\text{B}$	$\beta$ -NMR $\beta$ -NMR	1973Mi01 1996OhZY
					$0.063(5)$ $0.068(2)$ $0.0646(15)$	$^{12}_5\text{B}$ $^{12}_5\text{B}$ $^{12}_5\text{B}$	$\beta$ -NMR $\beta$ -NQR $\beta$ -NQR	1990MaZA 1992Mi18 1996OhZY
$^{10}_5\text{B}$	0	Stable	$3^+$	$+1.80064478(6)$		$^2_1\text{H}$	N, MB	1975Ep02 1939Mi05
					$+0.0847(6)$ st	$^{11}_5\text{B}$	AB, R	1970Ne21
$^{11}_5\text{B}$	718 0	0.69 ns Stable	$1^+$ $3/2^-$	$+0.63(12)$ $+2.6886489(10)$		$^{10}_5\text{B}$	IPAC N, MB	1972Av01 1975Ep02 1939Mi05
					$+0.0407(3)$		AB, R	1970Ne21
$^{12}_5\text{B}$	0	20.4 ms	$1^+$	$+1.00272(11)$ $+1.00306(15)$			$\beta$ -NMR $\beta$ -NMR	1990Mi16 1970Wi17 1972Wi08

(continued on next page)

Table 1 (continued)

Nucleus	$E$ (level)	$\tau_{1/2}$	$I^\pi$	$\mu$ (nm) <sup>*</sup>	$Q$ (b)	Ref. Std.	Method	Reference
				+1.000(3)	0.0132(3)	$^{11}_5\text{B}$	$\beta$ -NMR	2003Zh32
					0.0134(14) st	$^{11}_5\text{B}$	$\beta$ -NQR	1993Oh05
$^{13}_5\text{B}$	0	17.4 ms	$3/2^-$	+3.1778(5)	0.037(4)	$^{13}_5\text{B}$	$\beta$ -NMR	1978Mi19
						$^{13}_5\text{B}$	$\beta$ -NMR	1971Wi09
$^{14}_5\text{B}$	0	13.8 ms	$2^-$	1.185(5)	0.0298(8)	$^{12}_5\text{B}$	$\beta$ -NMR	1973Ha99
						$^{12}_5\text{B}$	$\beta$ -NMR	1995Ok04
$^{15}_5\text{B}$	0	10.3 ms	$3/2^-$	2.659(15)	0.0380(11)	$^{13}_5\text{B}$	$\beta$ -NMR	1996Iz01
						$^{12}_5\text{B}$	$\beta$ -NMR	1995Ok04
$^{17}_5\text{B}$	0	5.1 ms	$(3/2^-)$	2.55(2)	0.0386(15)	$^{12}_5\text{B}$	$\beta$ -NMR	1996Iz01
						$^{12}_5\text{B}$	$\beta$ -NMR	1996Ue02
$^9_6\text{C}$	0	126 ms	$3/2^-$	1.3914(5)			$\beta$ -NMR	2003Og03
				1.396(3)			$\beta$ -NMR	1995Ma48
$^{11}_6\text{C}$	0	20.4 m	$3/2^-$	-0.964(1)	0.032(2) st	$^{13}_6\text{C}$	AB, R	1998Hu08
					+0.06(3)		AB, R	1970Wo11
$^{12}_6\text{C}$	4438	45 fs	$2^+$				CER	1969Sc34
$^{13}_6\text{C}$	0	Stable	$1/2^-$	+0.7024118(14)		$^1_1\text{H}$	N	1983Ve01
	3854	8.5 ps	$5/2^+$	1.40(4)			RIV/D	1954Ro34
$^{14}_6\text{C}$	6728	67 ps	$3^-$	0.82(2)			RIV/D	1981Ru04
$^{15}_6\text{C}$	0	2.45 s	$1/2^+$	1.720(9)			$\beta$ -NMR	1974Al07
				1.32(7)			$\beta$ -NMR	2002As06
	739	2.61 ns	$5/2^+$	1.76(3)			RIV/D	1988AsZY
				-1.92(15)			IPAC	1980As01
$^{17}_6\text{C}$	0	193 ms	$3/2^+$	0.758(4)			$\beta$ -NMR	1975Ha42
$^{17}_7\text{N}$	0	11.0 ms	$1^+$	0.4573(5) d	+0.0098(9)	$^{14}_7\text{N}$	$\beta$ -NMR	2002Og02
					+0.049(6) or -0.010(6)		PhPi	1968Su05
					0.0103(7)	$^{14}_7\text{N}$	$\beta$ -NQR	1998Mi10
$^{13}_7\text{N}$	0	9.96 m	$1/2^-$	0.3222(4)		$^{14}_7\text{N}$	AB, R	1980Ra05
$^{14}_7\text{N}$	0	Stable	$1^+$	+0.40376100(6)		$^1_1\text{H}$	N	1994OhZY
								1964Be24
								1951Pr02
					+0.02001(10)		LRFS	1993Sc26
					+0.0193(8) st		IBSQB	1980Wi22
					0.0208 e, st		MA, R	1986Ha49
	5106	4.3 ps	$2^-$	1.32(8)			RIV/D	1978Mo27
	5832	12.5 ps	$3^-$	2.0(5)			RIGV	1973Be01
$^{15}_7\text{N}$	0	Stable	$1/2^-$	-0.28318884(5)		$^{14}_7\text{N}$	N	1962Ba63
	5270	1.73 ps	$5/2^+$	2.4(2)			RIV/D	1983Bi10
				+2.5(8)			IMPAC, R	1978Za13
$^{16}_7\text{N}$	0	7.13 s	$2^-$	1.9859(11) d	0.018(2)	$^{12}_7\text{N}$	$\beta$ -NMR	2001Ma42
						$^{12}_7\text{N}$	$\beta$ -NMR	2001Ma42
	293	91.3 ps	$3^-$	1.60(6)			RIV/D	1984Bi03
				1.50(8)			RIV/D	1989Ra99
	397	4.5 ps	$1^-$	-1.83(13)			RIV/D	1975As02
$^{17}_7\text{N}$	0	4.17 s	$1/2^-$	0.352(2)			$\beta$ -NMR	1996Ue02
$^{18}_7\text{N}$	0	624 ms	$1^-$	(-)0.135(15)			LMR	1999Ne01
				0.3279(13)			$\beta$ -NMR	1999Og03
					+0.027(4)		LMR	1999Ne01
					0.0123(12)	$^{12}_7\text{N}$	$\beta$ -NMR	1999Og03
$^{19}_7\text{N}$	0	0.27 s	$1/2^-$	0.305(15)			$\beta$ -NMR	2004Ka22
$^{13}_8\text{O}$	0	8.6 ms	$3/2^-$	1.3891(3) d, K	0.0110(13)	$^1_1\text{H}$	$\beta$ -NMR	1996Ma38
						$^{17}_8\text{O}$	$\beta$ -NQR	1999Ma46
$^{15}_8\text{O}$	0	122 s	$1/2^-$	0.71951(12) c		$^{17}_8\text{O}$	$\beta$ -NMR	1993Ta28
				0.7189(8)			AB	1963Co17
	5241	2.25 ps	$5/2^+$	+0.65(7)			RIV/D, IMPAC	1978Be73
								1983Bi10
$^{16}_8\text{O}$	6130	18.4 ps	$3^-$	<0.3 (2)			TF	1981De40
				+1.668(12)			RIV/D	1984As03
							IMPAC	1977Ka02
$^{17}_8\text{O}$	0	Stable	$5/2^+$	-1.89379(9)		$^2_1\text{H}$	N	1951Al08
					-0.02578 e, st		EPR, R	1969Sc34
					-0.26(3) st		EPR, R	1957Ka01
$^{18}_8\text{O}$	1982	1.94 ps	$2^+$	-0.57(3)			RIV/D	1976As04
					Negative sign		IPAD	1975Fo03



Table 1 (continued)

Nucleus	$E$ (level)	$\tau_{1/2}$	$I^\pi$	$\mu$ (nm) <sup>*</sup>	$Q$ (b)	Ref. Std.	Method	Reference
<sup>16</sup> O	3555 0	18 ps 27 s	4 <sup>+</sup> 5/2 <sup>+</sup>	2.5(4) 1.53195(7) c	−0.036(9)	<sup>16</sup> O 6130	CER, R	1983Gr28
					−0.02(3)		CER, R	1981Sp07
					−0.010(13) or +0.020(13)		CER	1977Vo07
					−0.07(3) or −0.05(3)		CER	1977F110
					−0.05(2) or −0.02(2)		CER	1979Fe06
					0.0037(4)		RIGV	1974Be63
<sup>17</sup> O	96 1674	1.37 s 7.4 ps	3/2 <sup>+</sup> 2 <sup>+</sup>	−0.72(9) 0.70(3) −0.78(8)		<sup>17</sup> O <sup>17</sup> O	β-NMR	1999Mi16
							β-NMR	1999Mi16
							IPAC	1976Go09
							RIV/D	1980Ru01
<sup>18</sup> O							IMPAC	1976Ge01
								1975Be15
							β-NMR	1993Mi33
							β-NMR	1966Su01
<sup>19</sup> F	0	64.5 s	5/2 <sup>+</sup>	+4.7213(3) +4.7223(12)	0.058(4) st	<sup>12</sup> B <sup>19</sup> F 197	β-NMR	1974Mi21
							IMPAC	1981St21
							RIV/D	1989Ra99
							RIGV	1978Go99
<sup>19</sup> F	1121	153 ns	5 <sup>+</sup>	+2.86(3)	0.077(5) st	<sup>19</sup> F 197 <sup>1</sup> H	TDPAD	1967Sc09
							TDPAD	1989Ra99
							N	1952Li18
								1964Ba11
<sup>19</sup> F	197	88.5 ns	5/2 <sup>+</sup>	+3.607(8) 3.595(13)	0.121(5) 0.072(4) st −0.12(2) st	Calc efg	TDPAD	1969Bi18
							RIV/D	1984As03
							TDPAD	2002Zh23
							TDPAD, R	1982Mi99
<sup>20</sup> F	1346 0	2.9 ps 11 s	5/2 <sup>−</sup> 2 <sup>+</sup>	0.67(11) +2.09335(9) +2.0935(9)	0.042(3) st	<sup>19</sup> F 197	TDPAD	1964Bu01
							RIV/D	1983Bi03
							β-NMR	1996MiZW
							β-NMR	1967Gu14
<sup>21</sup> F	0	4.16 s	5/2 <sup>+</sup>	3.93(5)		<sup>19</sup> F 197		1963Ts01
							β-NMR	1974St10
							β-NMR	1993Ok02
							β-NMR	2004Ba12
<sup>17</sup> Ne	0	109 ms	1/2 <sup>−</sup>	(+)0.74(3)		<sup>19</sup> F 197	β-NMR	1982Ma39
							β-NMR	1969Bl02
							TDPAD	1978Za13
							RIV/D, R	1975Ho15
<sup>19</sup> Ne	238	17.7 ns	5/2 <sup>+</sup>	−0.740(8)		<sup>19</sup> F 197		1981Sp07
								2003Le01
							TF	1986Tr08
							TF, R	1982Sp02
<sup>20</sup> Ne	1634	0.7 ps	2 <sup>+</sup>	+1.08(8)		<sup>20</sup> Ne 1634	TF	1984Br15
							TF, R	1982Sp02
							TF	1980Sp02
							MB	1957La08
<sup>21</sup> Ne	0	Stable	3/2 <sup>+</sup>	−0.661797(5)	+0.103(8)	<sup>20</sup> Ne 1634 <sup>2</sup> H	O, AB	1972Du06
								1958Gr65
							RIV/D	1978Ro10
							RIV/D	1977Be30
<sup>22</sup> Ne	351	7.1 ps	5/2 <sup>+</sup>	0.49(4) 0.70(8) 0.9(2)		<sup>20</sup> Ne 1634	RIV/D	1978An30
							RIV/D	1977Ho01
							TF	1986Ad99
							CER, R	1981Sp07
<sup>23</sup> Ne	1275	3.6 ps	2 <sup>+</sup>	+0.65(2)	−0.19(4)	<sup>22</sup> Ne 1275	TF	1984Ba10
							AB	1968Do07
							OP/RD	1975Sc20
							AB	1965Am01
<sup>20</sup> Na	0	0.446 s	2 <sup>+</sup>	+0.3694(2)		<sup>23</sup> Na <sup>23</sup> Na	ABLS	1982To05
							RIV/D	1977Be30
							AB	1949Da01
							ABLS	1998Ga44
<sup>21</sup> Na	0	22.5 s	3/2 <sup>+</sup>	+2.83630(10)	+0.05(4)	<sup>23</sup> Na	TDPAC	1966Su07
<sup>22</sup> Na	332	6.9 ps	5/2 <sup>+</sup>	3.7(3)		<sup>23</sup> Na		
<sup>11</sup> Na	0	2.60 y	3 <sup>+</sup>	+1.746(3)	+0.185(11)			
<sup>22</sup> Na	583	243 ns	1 <sup>+</sup>	+0.535(10)				

(continued on next page)

Table 1 (continued)

Nucleus	$E$ (level)	$\tau_{1/2}$	$I^\pi$	$\mu$ (nm) <sup>*</sup>	$Q$ (b)	Ref. Std.	Method	Reference
<sup>23</sup> <sub>11</sub> Na	2212	15.2 ps	1 <sup>−</sup>	+0.523(11)		<sup>19</sup> F 197	TDPAD	1989Ra99
	0	Stable	3/2 <sup>+</sup>	0.36(7)			RIV/D	1976Be06
				+2.217522(2)			AB/D	1974Be50
				+2.2176556(6)		<sup>1</sup> H	N	1976Fu06
					+0.1045(10)		R	1954Wa37
					+0.109(3)		R	1999Ke12
					+0.095(15)		CER	1992Su01
					+0.104(1)		MS	1992Vo09
					+0.101(2) a		Mu-X	1994Py02
							OL, R	1983Je09
<sup>24</sup> <sub>11</sub> Na	0	15.0 h	4 <sup>+</sup>	+1.6903(8)			AB/D	1971St12
								1966Ch15
								1973CoZG
<sup>25</sup> <sub>11</sub> Na	427	20.2 ms	1 <sup>+</sup>	−1.931(3)			$\beta$ -NMR	1980He08
								1979Mu13
<sup>25</sup> <sub>11</sub> Na	0	60 s	5/2 <sup>+</sup>	+3.683(4)	−0.10(5)	<sup>23</sup> <sub>11</sub> Na	OP/RD	1975De11
<sup>26</sup> <sub>11</sub> Na	0	1.07 s	3 <sup>+</sup>	+2.851(2)		<sup>23</sup> <sub>11</sub> Na	ABLS	1982To05
					−0.0053(2)	<sup>23</sup> <sub>11</sub> Na	ABLS	1978Hu12
					−0.08(5)	<sup>23</sup> <sub>11</sub> Na	CFBLS/ $\beta$ -NMR	2000Ke09
<sup>27</sup> <sub>11</sub> Na	0	0.29 s	5/2 <sup>+</sup>	+3.895(5)		<sup>23</sup> <sub>11</sub> Na	ABLS	1982To05
					−0.0072(3)	<sup>23</sup> <sub>11</sub> Na	ABLS	1978Hu12
					−0.06(5)	<sup>23</sup> <sub>11</sub> Na	CFBLS/ $\beta$ -NMR	2000Ke09
					$Q/Q_{(11}\text{Na}^{26}) = 1.39(4)$		ABLS	1982To05
							CFBLS/ $\beta$ -NMR	1996Ke08
<sup>28</sup> <sub>11</sub> Na	0	30.5 ms	1 <sup>+</sup>	+2.426(5)		<sup>23</sup> <sub>11</sub> Na	ABLS	1978Hu12
					+0.0395(12)	<sup>23</sup> <sub>11</sub> Na	CFBLS/ $\beta$ -NMR	2000Ke09
					−0.02(4)		ABLS	1982To05
<sup>29</sup> <sub>11</sub> Na	0	43 ms	3/2 <sup>+</sup>	+2.449(8)			CFBLS/ $\beta$ -NMR	1996Ke08
					$Q/Q_{(11}\text{Na}^{26}) = -7.7(2)$	<sup>23</sup> <sub>11</sub> Na	ABLS	1978Hu12
					+0.086(3)	<sup>23</sup> <sub>11</sub> Na	CFBLS/ $\beta$ -NMR	2000Ke09
					−0.03(5)		ABLS	1982To05
<sup>30</sup> <sub>11</sub> Na	0	53 ms	2 <sup>+</sup>	+2.083(10)		<sup>23</sup> <sub>11</sub> Na	ABLS	1978Hu12
<sup>31</sup> <sub>11</sub> Na	0	17 ms	3/2 <sup>+</sup>	+2.305(8)		<sup>23</sup> <sub>11</sub> Na	ABLS, R	1978Hu12
<sup>23</sup> <sub>12</sub> Mg	0	11.3 s	3/2 <sup>+</sup>	0.5364(3)			$\beta$ -NMR	1993Fu06
					0.125(5)		$\beta$ -NQR	1996MaZV
<sup>24</sup> <sub>12</sub> Mg	1369	1.45 ps	2 <sup>+</sup>	+1.02(4)			RIV/D	1975Ho15
							IMPAC	1974Eb02
					−0.29(3)		CER	1990Gr11
					−0.18(2)		CER, R	1981Sp07
					−0.178(13)		CER	1979Fe05
					−0.07(3)		ES, R	1981Ko06
	4123	38 fs	4 <sup>+</sup>	+1.6(12)		<sup>24</sup> <sub>12</sub> Mg 1369	TF	1983Sp01
	4238	73 fs	2 <sup>+</sup>	+1.2(4)		<sup>24</sup> <sub>12</sub> Mg 1369	TF	1983Sp01
	6010	55 fs	4 <sup>+</sup>	+2.0(16)		<sup>24</sup> <sub>12</sub> Mg 1369	TF	1984Sp03
	0	Stable	5/2 <sup>+</sup>	−0.85545(8)		<sup>14</sup> <sub>7</sub> N	N	1951Ai11
<sup>25</sup> <sub>12</sub> Mg					+0.199(2)		R	1991Su13
					+0.201(3) a		Mu-X	1982We04
						<sup>24</sup> <sub>12</sub> Mg 1369	TF	1981Sp04
					−0.21(2)		CER	1991He09
					−0.14(3)		CER, R	1981Sp07
<sup>26</sup> <sub>12</sub> Mg	1809	476 fs	2 <sup>+</sup>	+1.0(3)			CER	1982Sp05
					−0.14(3) or −0.10(3)		CER	1977Sc36
					−0.11(6)		CER	1976Mi11
						<sup>27</sup> <sub>13</sub> Al	$\beta$ -NMR	1996Co04
					+0.27(3)	<sup>27</sup> <sub>13</sub> Al	ABLS	1997Le19
<sup>27</sup> <sub>13</sub> Al	0	7.18 s	5/2 <sup>+</sup>	3.6455(12)		<sup>2</sup> H	N	1968Ep01
	0	7 × 10 <sup>5</sup> y	5 <sup>+</sup>	+2.804(4)			R	1999Ke07
							R	1992Su01
					+0.1466(10)		Mu-X	1982We04
					+0.1402(10)		$\beta$ -NMR	1981Mi14
<sup>28</sup> <sub>13</sub> Al	0	2.24 m	3 <sup>+</sup>	3.242(5)			$\beta$ -NMR	1978St31
					0.175(14)	<sup>27</sup> <sub>13</sub> Al	IPAC	1972He22
	31	1.91 ns	2 <sup>+</sup>	+4.3(4)			LMR	2002Bo22
	0	644 ms	(5/2 <sup>+</sup> )	(+)3.79(5)			$\beta$ -NMR	1998MaZJ
	0	4.1 s	5/2 <sup>+</sup>	(−)0.8652(4) d			$\beta$ -NMR	1999MaZK
<sup>27</sup> <sub>14</sub> Si	0			0.8654(3) d				

Table 1 (continued)

Nucleus	$E$ (level)	$\tau_{1/2}$	$I^\pi$	$\mu$ (nm) <sup>*</sup>	$Q$ (b)	Ref. Std.	Method	Reference
				(−)0.8554(4)				
<sup>28</sup> <sub>14</sub> Si	1779	0.49 ps	2 <sup>+</sup>	+1.1(2)	0.063(14)	Calc efg	β-NMR	1984Hu11
					0.061(4)	Calc efg	β-NMR	1999MaZK
							β-NMR	1998MaZJ
					+0.16(3)		IMPAC	1975Eb01
					+0.18(3)		CER, R	1981Sp07
<sup>29</sup> <sub>14</sub> Si	0	Stable	2 <sup>+</sup>	−0.55529(3)	+0.16(3)		CER	1980Ba40
							CER	1980Fe07
						<sup>2</sup> <sub>1</sub> H	N	1953We51
					−0.05(6)		IMPAC, R	1978Za13
					−0.05(6) or +0.01(6)		CER, R	1981Sp07
<sup>30</sup> <sub>14</sub> Si	2235	0.25 ps	2 <sup>+</sup>	+0.8(2)	−0.16(2) or −0.13(2)		CER	1979Fe08
							CER	1982Ve09
							β-NMR, OP/RD	1991Sh99
							β-NMR	1971SuZi
						<sup>23</sup> <sub>11</sub> Na	N	1954Wa37
<sup>31</sup> <sub>15</sub> P	0	Stable	1/2 <sup>+</sup>	+1.13160(3)			IMPAC	1982Ho06
					+0.30(8)		IMPAC	1982Ho06
					+2.8(5)		ENDOR	1957Fe32
					−0.2524(3)		β-NMR	1976Mi16
					0.48793(8)		TF	1979Za01
<sup>32</sup> <sub>15</sub> P	0	14.28 d	1 <sup>+</sup>	−0.2524(3)	−0.15(2)		CER, R	1981Sp07
					−0.16(2) or −0.13(2)		CER	1982Ve09
					−0.18(4) or −0.15(4)		CER	1981Da08
					−0.12(5)		CER	1980Ba40
						<sup>32</sup> <sub>16</sub> S 2230	TF	1988Si14
<sup>33</sup> <sub>16</sub> S	4459	0.144 ps	4 <sup>+</sup>	+1.6(6)			N	1973Lu06
						<sup>2</sup> <sub>1</sub> H		1951Dh01
							MA	1954Bi40
							CFBLS	1986El09
							MCHF	1990Su19
<sup>34</sup> <sub>16</sub> S	2128	0.32 ps	2 <sup>+</sup>	+1.0(2)	−0.678(13)		IMPAC	1979Za01
					+0.04(3)		CER, R	1981Sp07
					+0.06(4)		CER	1980Ba40
							MA	1954Bu05
					+0.0471(9)		MCHF	1990Su19
<sup>35</sup> <sub>16</sub> S	0	87.4 d	3/2 <sup>+</sup>	+1.00(4) or +1.07(4)	+0.045(10)		MA	1954Bi40
							β-NMR	2000Ro30
							β-NMR	1986Ro20
						<sup>2</sup> <sub>1</sub> H	N	1972Bi07
							R	2004Ai08
<sup>36</sup> <sub>17</sub> Cl	0	298 ms	1 <sup>+</sup>	+1.114(6)	0.0850(11)		R	2000Ha64
					0.0819(11) a		R	1993Su36
					−0.817(8) a		AB, R	1972St38
					−0.08249(2) st		CFBLS	1986El09
					−0.076(5)		N	1955So10
<sup>37</sup> <sub>17</sub> Cl	0	3.0 × 10 <sup>5</sup> y	2 <sup>+</sup>	+1.28547(5)	−0.0180(4) st	<sup>2</sup> <sub>1</sub> H	MA, R	1972St38
						<sup>35</sup> <sub>17</sub> Cl		1972Bi07
						<sup>2</sup> <sub>1</sub> H	N	1972Bi07
					−0.0644(7) a		R	1993Su36
					−0.06493(2) st		AB, R	1972St38
<sup>38</sup> <sub>18</sub> Ar	0	37.3 m	2 <sup>−</sup>	2.05(2)	−0.068(10)		CFBLS	1986El09
							β-NMR	1972La22
						<sup>37</sup> <sub>18</sub> Ar	CFBLS/β-NMR	1996Kl04
							β-NMR	2002Ma41
						<sup>37</sup> <sub>18</sub> Ar	CFBLS/β-NMR	1996Kl04
<sup>39</sup> <sub>18</sub> Ar	0	1.78 s	3/2 <sup>+</sup>	(+0.6322(2)) +0.633(7) +0.633(2)	−0.084(15)		NO/D	1965Ca04
					+0.11(6)	<sup>37</sup> <sub>18</sub> Ar	CFBLS/β-NMR	1996Kl04
							CER	1971Na06
						<sup>85</sup> <sub>36</sub> Kr	N, OP/RD	1988PiZY
							O	1965Ro13
<sup>40</sup> <sub>18</sub> Ar	1611	4.6 ns	7/2 <sup>−</sup>	−1.33(5)	+0.076(9)		CFBLS/β-NMR	1996Kl04
							TDPAD	1971Ra22
						<sup>37</sup> <sub>18</sub> Ar	CFBLS/β-NMR	1996Kl04
							O	1967Tr12
					−0.12(3)	<sup>37</sup> <sub>18</sub> Ar	CFBLS/β-NMR	1996Kl04
<sup>41</sup> <sub>18</sub> Ar	0	269 y	7/2 <sup>−</sup>	−1.588(15) −1.3(3)				

(continued on next page)

Table 1 (continued)

Nucleus	$E$ (level)	$\tau_{1/2}$	$I^\pi$	$\mu$ (nm) <sup>*</sup>	$Q$ (b)	Ref. Std.	Method	Reference
<sup>40</sup> <sub>18</sub> Ar	1461	1.12 ps	2 <sup>+</sup>	−0.2(2)	+0.01(4)		TF CER	1992Cu04 1970Na05
<sup>35</sup> <sub>19</sub> K	0	178 ms	3/2 <sup>+</sup>	(+) 0.36(3)			β-NMR	1998Sc19
<sup>36</sup> <sub>19</sub> K	0	0.34 s	2 <sup>+</sup>	(+)0.548(1)		<sup>39</sup> <sub>19</sub> K	OP/RD	1975Sc20
<sup>37</sup> <sub>19</sub> K	0	1.23 s	3/2 <sup>+</sup>	+0.20321(6)			OP/RD	1971Vo03
	1379	10.5 ns	5/2, 7/2 <sup>−</sup>	$g = +1.5(1)$			TDPAD	1971Ra22
<sup>38</sup> <sub>19</sub> K	0	7.61 m	3 <sup>+</sup>	+1.371(6)		<sup>39</sup> <sub>19</sub> K	AB, R	1982To02
	3458	22.1 μs	7 <sup>+</sup>	+3.836(14)			TDPAD	1974Io01
<sup>39</sup> <sub>19</sub> K	0	Stable	3/2 <sup>+</sup>	+0.39147(3) +0.3914662(3) +0.39150731(12)		<sup>2</sup> <sub>1</sub> H	ABLS AB/D N	1993Du08 1974Be50 1974Sa24 1974Sa25
					+0.585(6) a +0.060(2) a +0.049(4) st		R R OL, R	1998Ke05 1993Su36 1971St12
	2814	48 ps	7/2 <sup>−</sup>	4.0(4)		<sup>41</sup> <sub>19</sub> K 1294	RIGV	1981Le19
	3598	37 ps	9/2 <sup>−</sup>	2.4(2)		<sup>41</sup> <sub>19</sub> K 1294	RIGV	1981Le19
	8030	14 ps	19/2 <sup>−</sup>	+3.3(3)		<sup>41</sup> <sub>20</sub> Ca 3830	TF	1992Pa01
<sup>40</sup> <sub>19</sub> K	0	1.3 × 10 <sup>9</sup> y	4 <sup>−</sup>	−1.298100(3) −1.2982(4)		<sup>2</sup> <sub>1</sub> H	N AB/D	1974Sa24 1952Ei09
					−0.073(1) a −0.075(2) a −0.061(5) st	<sup>39</sup> <sub>19</sub> K <sup>39</sup> <sub>19</sub> K <sup>39</sup> <sub>19</sub> K	R R Q, OL	1998Ke05 1993Su36 1972Jo09 1971St12
	30	4.30 ns	3 <sup>−</sup>	−1.29(9)		<sup>19</sup> <sub>9</sub> F 197	TDPAD	1974Br12
	2543	1 ns	7 <sup>+</sup>	+4.1(7) +4.4(11)			IMPAD	1976Bo21
<sup>41</sup> <sub>19</sub> K	0	Stable	3/2 <sup>+</sup>	+0.2148701(2) +0.21489274(12)		<sup>41</sup> <sub>19</sub> K 1294	RIGV AB/D	1981Le19 1974Be50
					+0.0711(7) a +0.073(2) a +0.060(5) st	<sup>2</sup> <sub>1</sub> H	N R R MB, R	1974Sa24 1974Sa25 1998Ke05 1993Su36 1971St12
	1294	7.42 ns	7/2 <sup>−</sup>	+4.42(5)		<sup>19</sup> <sub>9</sub> F 197	TDPAD	1969Bi07
	2528	152 ps	11/2 <sup>+</sup>	4.5(10)		<sup>41</sup> <sub>19</sub> K 1294	RIGV	1981Le19
	2774	55 ps	13/2 <sup>+</sup>	3.0(5)		<sup>41</sup> <sub>19</sub> K 1294	RIGV	1981Le19
	4983	73 ps	19/2 <sup>−</sup>	7(3)		<sup>41</sup> <sub>19</sub> K 1294	RIGV	1981Le19
<sup>42</sup> <sub>19</sub> K	0	12.36 h	2 <sup>−</sup>	−1.1425(6)			AB/D	1969Ch20
<sup>43</sup> <sub>19</sub> K	0	22.3 h	3/2 <sup>+</sup>	+0.1633(8)		<sup>39</sup> <sub>19</sub> K	ABLS, R	1973CoZG 1982To02
	738	202 ns	7/2 <sup>−</sup>	+4.43(5)			TDPAD	1982Du06
<sup>44</sup> <sub>19</sub> K	0	22.1 m	2 <sup>−</sup>	−0.856(4)		<sup>39</sup> <sub>19</sub> K	ABLS, R	1983Ra37 1982To02 1982Du06
<sup>45</sup> <sub>19</sub> K	0	20 m	3/2 <sup>+</sup>	+0.1734(8)		<sup>39</sup> <sub>19</sub> K	AB, R	1982To02
<sup>46</sup> <sub>19</sub> K	0	115 s	2 <sup>−</sup>	−1.051(6)		<sup>39</sup> <sub>19</sub> K	ABLS	1982To02
<sup>47</sup> <sub>19</sub> K	0	17.5 s	1/2 <sup>+</sup>	+1.933(9)		<sup>39</sup> <sub>19</sub> K	ABLS	1982To02
<sup>39</sup> <sub>20</sub> Ca	0	0.86 s	3/2 <sup>+</sup>	1.02168(12)			β-NMR	1976Mi05
					0.036(7) 0.040(6)		β-NMR β-NMR	1999MaZI 1999MaZK
<sup>40</sup> <sub>20</sub> Ca	3737	47 ps	3 <sup>−</sup>	+1.6(3)		Calc efg	TFL RIGV,R	1979Ni04 1976Ja16
				+1.6(3) +2.6(5)		<sup>42</sup> <sub>20</sub> Ca 4492	IMPAC IPAD	1987Ma25 1974He13
<sup>41</sup> <sub>20</sub> Ca	4492	295 ps	5 <sup>−</sup>	−1.594781(9)		<sup>2</sup> <sub>1</sub> H	N	1962Br30
	0	1.0 × 10 <sup>5</sup> y	7/2 <sup>−</sup>	−1.5942(7) −1.61(2)		<sup>43</sup> <sub>20</sub> Ca <sup>43</sup> <sub>20</sub> Ca <sup>43</sup> <sub>20</sub> Ca	ABLDF ABLFS R	1983Ar25 1982An15 2002Mi37
					−0.090(2) st −0.066(2) a −0.080(8) st	<sup>43</sup> <sub>20</sub> Ca	R R ABLDF	1993Su36 1983Ar25 1975Yo05
<sup>42</sup> <sub>20</sub> Ca	3830	3.1 ns	15/2 <sup>+</sup>	+2.18(15)			TDPAD	1975Yo05
	1525	1.1 ps	2 <sup>+</sup>	+0.08(12)			TF CER	2003Sc21 1973To07
					−0.19(8)			

Table 1 (continued)

Nucleus	$E$ (level)	$\tau_{1/2}$	$I^\pi$	$\mu$ (nm)*	$Q$ (b)	Ref. Std.	Method	Reference
$^{43}_{20}\text{Ca}$	3189	5.3 ns	$6^+$	$-2.49(9)$			TDPAD	1975Yo02
	3189	5.3 ns	$6^+$	$-2.49(9)$			TDPAD	1975Yo02
	0	Stable	$7/2^-$	$-1.3173(6)$		$^{23}_{11}\text{Na}$	OP/RD	1972Oi01
				$-1.317643(7)$		$^2_1\text{H}$	N	1973Lu08
					$-0.055(1)$		R	2002Mi37
					$-0.0408(8)$ a		R	1993Su36
					$-0.043(9)$		CFBLS	1991Si14
					$-0.049(5)$		ABLDF, R	1983Ar25
								1979Gr05
								1982Ay02
$^{44}_{20}\text{Ca}$	1157	2.9 ps	$2^+$	$+0.24(10)$			TF	1984Sa10
				$+0.34(6)$			TF	1982Ku12
				$-0.6(2)$		$^{43}_{20}\text{Ca}$ 3737	TFL, RIV/D	2003TA05
					$+0.24(10)$		TF	2003Sc21
					$-0.14(7)$		CER	1979Ni04
$^{45}_{20}\text{Ca}$	0	165 d	$7/2^-$	$-1.3274(14)$		$^{43}_{20}\text{Ca}$	ABLFS, R	2003Ta10
								1973To07
								1983Ar25
								1981Ar15
								1980Be13
$^{46}_{20}\text{Ca}$ $^{47}_{20}\text{Ca}$	1346	4.6 ps	$2^+$	$-0.4(2)$		$^{43}_{20}\text{Ca}$ 3737	ABLFS	1982An15
	0	4.5 d	$7/2^-$	$-1.38(3)$		$^{43}_{20}\text{Ca}$	ABLFS	1982An15
					$+0.021(4)$	$^{50}_{22}\text{Ti}$ 1554	TF	2003SP04
						$^{43}_{20}\text{Ca}$	ABLFS	1982An15
						$^{12}_5\text{B}$	$\beta$ -NMR	1990Mi16
$^{41}_{21}\text{Sc}$	0	0.59 s	$7/2^-$	$+5.431(2)$ d		$^{45}_{21}\text{Sc}$	R	2002Mi37
					$-0.156(3)$ st	$^{45}_{21}\text{Sc}$	$\beta$ -NMR	1990Mi19
					$0.120(6)$	$^{45}_{21}\text{Sc}$	$\beta$ -NQR	1993Mi09
					$0.166(8)$	$^{45}_{21}\text{Sc}$	AB	1966Co13
						$^{45}_{21}\text{Sc}$	AB	1966Co13
$^{43}_{21}\text{Sc}$	0	3.89 h	$7/2^-$	$+4.62(4)$		$^{45}_{21}\text{Sc}$	AB	1966Co13
					$-0.26(6)$	$^{45}_{21}\text{Sc}$	AB	1966Co13
	152	438 $\mu\text{s}$	$3/2^+$	$+0.348(6)$		$^{45}_{21}\text{Sc}$	TDPAD	1977Mi10
	3123	473 ns	$19/2^-$	$+3.122(7)$		$^{45}_{21}\text{Sc}$	TDPAD	1978Ha07
					$0.199(14)$	$^{45}_{21}\text{Sc}$	TDPAD	1981Da06
$^{44}_{21}\text{Sc}$	0	3.93 h	$2^+$	$+2.56(3)$		$^{45}_{21}\text{Sc}$	AB, R	1966Co13
					$+0.10(5)$	$^{45}_{21}\text{Sc}$	R	1966Co13
	68	153 ns	$1^-$	$+0.342(6)$		$^{45}_{21}\text{Sc}$	TDPAC	1967Ri06
					$0.21(2)$	$^{45}_{21}\text{Sc}$	TDPAC	1973Ha61
	235	6.1 ns	$2^-$	$+0.68(10)$		$^{19}_9\text{F}$ 197	TDPAD	1975Br12
$^{45}_{21}\text{Sc}$	271	2.44 d	$6^+$	$+3.88(1)$		$^{45}_{21}\text{Sc}$	AB, R	1966Co13
					$-0.19(2)$	$^{45}_{21}\text{Sc}$	R	1966Co13
	350	3.2 ns	$4^+$	$+3.6(5)$		$^{45}_{21}\text{Sc}$	IPAD	1975Ch37
	0	Stable	$7/2^-$	$+4.756487(2)$		$^2_1\text{H}$	N	1969Lu01
								1951Pr02
$^{46}_{21}\text{Sc}$					$-0.156(3)$ st	$^{45}_{21}\text{Sc}$	NMR	2002Mi37
					$-0.220(2)$	Calc efg	MS	2000Ke12
					$-0.22(1)$		ABLDF	1976Er01
					$-0.216(9)$		AB	1971Ch25
	0	83.81 d	$4^+$	$+3.03(2)$		$^{45}_{21}\text{Sc}$	AB	1962Pe21
$^{47}_{21}\text{Sc}$					$+0.119(6)$	$^{45}_{21}\text{Sc}$	AB	1962Pe21
	0	3.42 d	$7/2^-$	$+5.34(2)$		$^{45}_{21}\text{Sc}$	AB	1966Co13
					$-0.22(3)$	$^{45}_{21}\text{Sc}$	AB	1966Co13
	767	247 ns	$3/2^+$	$0.35(5)$		$^{45}_{21}\text{Sc}$	TDPAD	1968Fo02
	0	0.50 s	$7/2^-$	$0.85(2)$			$\beta$ -NMR	1993Ma67
$^{43}_{22}\text{Ti}$	3066	560 ns	$19/2^-$	$+7.22(1)$			TDPAD	1978Ha07
					$0.30(7)$ st	$^{47}_{22}\text{Ti}$	TDPAD	1981Da06
	1083	2.7 ps	$2^+$	$+1.0(3)$			TF	2003Sc19
	0	3.09 h	$7/2^-$	$0.095(2)$		$^{47,49}_{22}\text{Ti}$	AB	1966Co19
					$0.015(15)$	$^{47,49}_{22}\text{Ti}$	AB	1966Co19
$^{44}_{22}\text{Ti}$ $^{45}_{22}\text{Ti}$	40	11.3 ns	$5/2^-$	$-0.133(10)$			TDPAD	1975Br15
				$-0.08(3)$			TDPAD	1977St12
	329	1.10 ns	$3/2^+$	$+1.1(3)$			IPAD, R	1977Bu10
	889	5.36 ps	$2^+$	$+0.99(5)$			TF	2000Er06

(continued on next page)

Nucleus	$E$ (level)	$\tau_{1/2}$	$I^\pi$	$\mu$ (nm) <sup>*</sup>	$Q$ (b)	Ref. Std.	Method	Reference
<sup>47</sup> <sub>22</sub> Ti	2010 0	1.64 ps Stable	4 <sup>+</sup> 5/2 <sup>-</sup>	+1.0(3) +2.3(7) -0.78848(1)	-0.21(6)	<sup>39</sup> <sub>19</sub> K	TF	1981Sh19
							CER	1975To06
							TF	2000Er06
							N	1965Dr03
								1953Je16
<sup>48</sup> <sub>22</sub> Ti	159 984	210 ps 4.29 ps	7/2 <sup>-</sup> 2 <sup>+</sup>	-1.9(6) +0.78(4) +0.9(4)	+0.30(2) +0.29(1)	<sup>45</sup> <sub>22</sub> Ti 330	LRFS	1990Ay01
							AB	1965Ch19
							IPAD	1977Bu10
							TF	2000Er06
							TF	1981Sh19
<sup>49</sup> <sub>22</sub> Ti	2296 0	0.8 ps Stable	4 <sup>+</sup> 7/2 <sup>-</sup>	+2.2(5) -1.10417(1)	-0.177(8)	<sup>39</sup> <sub>19</sub> K	ES	1972Li12
							TF	2000Er06
							N	1965Dr03
								1953Je16
<sup>50</sup> <sub>22</sub> Ti	1554	1.12 ps	2 <sup>+</sup>	+2.89(15)	0.247(11) +0.24(1) 0.324(3)		R	1999Bi11
							AB	1965Ch19
							LRDRS	1992Be68
							TF	2000Sp08
							CER	1975To06
<sup>46</sup> <sub>23</sub> V <sup>48</sup> <sub>23</sub> V	3198 802 0 308	0.42 ns 1.02 ms 15.94 d 7.1 ns	6 <sup>+</sup> 3 <sup>+</sup> 4 <sup>+</sup> 2 <sup>+</sup>	+9.3(10) +1.64(3) 2.012(11) +0.44(2) +0.28(10)	+0.08(16) -0.02(9)	<sup>51</sup> <sub>23</sub> V <sup>51</sup> <sub>23</sub> V <sup>51</sup> <sub>23</sub> V <sup>51</sup> <sub>23</sub> V	CER	1970Ha24
							IPAD	1976Bo25
							TDPAD	1982Si15
							NMR/ON	1980Bu11
							TDPAC	1987Bi14
<sup>49</sup> <sub>23</sub> V <sup>50</sup> <sub>23</sub> V	0 153 0	330 d 19.9 ns 1.5 × 10 <sup>17</sup> y	7/2 <sup>-</sup> 3/2 <sup>-</sup> 6 <sup>+</sup>	4.47(5) +2.37(12) +3.3456889(14)	0.21(4) +0.21(4) 0.21(4)	<sup>51</sup> <sub>23</sub> V <sup>51</sup> <sub>23</sub> V <sup>51</sup> <sub>23</sub> V <sup>2</sup> <sub>1</sub> H <sup>51</sup> <sub>23</sub> V <sup>51</sup> <sub>23</sub> V <sup>51</sup> <sub>23</sub> V	IPAD	1978Ta17
							EPR	1957We17
							TDPAD	1972Vi06
							N	1981Ha11
							N	1982Bl03
<sup>51</sup> <sub>23</sub> V	0	Stable	7/2 <sup>-</sup>	+5.1487057(2)	-0.043(5) -0.052(10) -0.033(10)	<sup>2</sup> <sub>1</sub> H <sup>51</sup> <sub>23</sub> V <sup>51</sup> <sub>23</sub> V <sup>51</sup> <sub>23</sub> V <sup>2</sup> <sub>1</sub> H	ABLDF	1979Er04
							N	1981Lu04
							N	1981Lu04
								1951Pr02

Table 1 (continued)

Nucleus	$E$ (level)	$\tau_{1/2}$	$I^\pi$	$\mu$ (nm) <sup>*</sup>	$Q$ (b)	Ref. Std.	Method	Reference
<sup>52</sup> <sub>25</sub> Mn	0	5.80 d	6 <sup>+</sup>	+3.0622(12) +3.0632(13)	0.42(7) st	<sup>55</sup> <sub>25</sub> Mn	AB	1971Jo10
						<sup>55</sup> <sub>25</sub> Mn	AB	1966Ad03
						<sup>55</sup> <sub>25</sub> Mn	NMR/ON	1970Ni11
					+0.50(7) st	<sup>55</sup> <sub>25</sub> Mn	NMR/ON	1970Ni11
						<sup>55</sup> <sub>25</sub> Mn	AB	1971Jo10
<sup>53</sup> <sub>25</sub> Mn	378	21.1 m	2 <sup>+</sup>	0.00768(8)		<sup>55</sup> <sub>25</sub> Mn	EPR	1956Do45
	0	3.7 × 10 <sup>6</sup> y	7/2 <sup>−</sup>	5.024(7)		<sup>55</sup> <sub>25</sub> Mn	IMPAC	1975Si08
	378	117 ps	5/2 <sup>−</sup>	+3.3(3)		<sup>55</sup> <sub>25</sub> Mn	NMR/ON	1970Ni11
<sup>54</sup> <sub>25</sub> Mn	0	312 d	3 <sup>+</sup>	+3.2819(13)	+0.33(3) st	<sup>55</sup> <sub>25</sub> Mn	NMR/ON	1970Ni11
<sup>55</sup> <sub>25</sub> Mn	0	Stable	5/2 <sup>−</sup>	3.4532(13) +3.46871790(9)	+0.33(1) st +0.31(2) st	<sup>2</sup> <sub>1</sub> H	ENDOR N ABLDF OL, R	1971Sa16 1974Lu08 1979De19 1979De19 1969Ha22
<sup>56</sup> <sub>26</sub> Mn	0	2.58 h	3 <sup>+</sup>	+3.2266(2)		<sup>55</sup> <sub>25</sub> Mn	AB, OP/RD	1961Ch05
<sup>53</sup> <sub>26</sub> Fe	741	64 ns	3/2 <sup>−</sup>	−0.386(15)			TDPAD	1989Ra99
<sup>54</sup> <sub>26</sub> Fe	1408	0.80 ps	2 <sup>+</sup>	+2.10(12) +2.1(3) +3.4(8) +2.2(4) +2.9(6)			TF TF IMPAC TF	2000Sp08 1992SP02 1977Br23 1977Fa07 1974Hu01
					−0.05(14)		CER	1981Le02
	2950	1.22 ns	6 <sup>+</sup>	8.2(2)			TDPAD	1971He21
	6527	367 ns	10 <sup>+</sup>	+7.28(1)			TDPAD	1983Ra03
					+0.30(4) st 0.28(4)		TDPAD, TF TDPAD, R	1984Ha07 1983Ra03 1978Da09
<sup>55</sup> <sub>26</sub> Fe	931	8.3 ps	5/2 <sup>−</sup>	+2.7(12)			TDPAD	1973Ke03
	1317	2.1 ps	7/2 <sup>−</sup>	+2(2)			IPAD	1973Ke03
	1408	38.3 ps	7/2 <sup>−</sup>	−2.4(5)			TDPAD	1973Ke03
<sup>56</sup> <sub>26</sub> Fe	847	6.9 ps	2 <sup>+</sup>	1.22(16)			IMPAC IPAC, R	1977Br23
					−0.19(8) −0.23(3)		CER CER	1981Le02 1971Th14
<sup>57</sup> <sub>26</sub> Fe	0	Stable	1/2 <sup>−</sup>	+0.09044(7) +0.09062300(9) +0.0907638(1) −0.1549(2)		<sup>2</sup> <sub>1</sub> H <sup>2</sup> <sub>1</sub> H <sup>57</sup> <sub>26</sub> Fe	ENDOR N N ME	1965Lo11 1974Sa25 1974Sa25 1965Pe15 1962Pr10
					0.11 0.16(1) 0.14(2) +0.082(8) st +0.209(5)		R R R ME, R ME, R	1998Ha40 1995Du17 1992Ru07 1981Du12 1976St73
	136	8.80 ns	5/2 <sup>−</sup>	+0.935(10)			TDPAD	1979Fa07
	367	6.9 ps	3/2 <sup>−</sup>	<0.6			IMPAC	1969Sp05
<sup>58</sup> <sub>26</sub> Fe	811	6.7 ps	2 <sup>+</sup>	+0.9(3) +0.9(2)		<sup>56</sup> <sub>26</sub> Fe 847	TF	1977Br23 1969Si13 1977Br23
					−0.27(5)		CER	1981Le02
<sup>59</sup> <sub>26</sub> Fe	0	44.6 d	3/2 <sup>−</sup>	−0.3358(4) 0.29(3)			NMR/ON(β) NO/S	1996Oh02 1976Kr10
<sup>61</sup> <sub>26</sub> Fe	861	250 ns	(9/2 <sup>+</sup> )	−1.031(9)		<sup>54</sup> <sub>26</sub> Fe 6527	TDPAD	2004Ma80
<sup>55</sup> <sub>27</sub> Co	0	17.5 h	7/2 <sup>−</sup>	+4.822(3)			NMR/ON	1973Ca06
<sup>56</sup> <sub>27</sub> Co	0	78.8 d	4 <sup>+</sup>	3.85(1) 3.99(6)		<sup>60</sup> <sub>27</sub> Co <sup>60</sup> <sub>27</sub> Co	NMR/ON NMR/ON	1977St36 1986Ro28
					+0.25(9)	<sup>58</sup> <sub>27</sub> Co <sup>60</sup> <sub>27</sub> Co	NMR/ON NMR/ON	1988Ba87 1972Ni01
<sup>57</sup> <sub>27</sub> Co	0	271 d	7/2 <sup>−</sup>	+4.720(10) 4.719(12) 4.78(6)		<sup>59</sup> <sub>27</sub> Co <sup>60</sup> <sub>27</sub> Co	NMR/ME NMR/ON	1974La19 1986Ro28
					+0.52(9)	<sup>59</sup> <sub>27</sub> Co <sup>60</sup> <sub>27</sub> Co	NMR/ON IPAD	1972Ni01 1970Va10
<sup>58</sup> <sub>27</sub> Co	1378	19 ps	3/2 <sup>−</sup>	+3.0(6)		<sup>59</sup> <sub>27</sub> Co <sup>59</sup> <sub>27</sub> Co	NMR/ON EPR	1972Ni01 1957Do38
	0	70.8 d	2 <sup>+</sup>	+4.044(8) +4.040(14)				

(continued on next page)

Table 1 (continued)

Nucleus	$E$ (level)	$\tau_{1/2}$	$I^\pi$	$\mu$ (nm) <sup>*</sup>	$Q$ (b)	Ref. Std.	Method	Reference
<sup>59</sup> <sub>27</sub> Co	53	10.4 $\mu$ s	4 <sup>+</sup>	+4.184(8)	+0.22(3)	<sup>59</sup> <sub>27</sub> Co	NMR/ON	1972Ni01
	111	0.18 ns	3 <sup>+</sup>	+2.2(4)			SOP/RDAD	1970Be33
	0	Stable	7/2 <sup>−</sup>	+4.627(9)			IPAD	1972Ha61
								1967Wa16
							N	1951Pr02
<sup>60</sup> <sub>27</sub> Co	1292	555 ps	3/2 <sup>−</sup>	+2.54(12)	+0.35(3)		LRFS	1990Gu28
	0	5.271 y	5 <sup>+</sup>	+3.799(8)	+0.41(1)		R	1993De41
					+0.40(4)		AB	1960Eh03
					+0.42(3) st		O	1969Mu11
						<sup>59</sup> <sub>27</sub> Co	IPAC	1974Ba08
<sup>57</sup> <sub>28</sub> Ni	59	10.5 m	2 <sup>+</sup>	+4.40(9)	+0.44(5)	<sup>59</sup> <sub>27</sub> Co	NMR/ON	1972Ni01
	0	36 h	3/2 <sup>−</sup>	−0.7975(14)	+0.3(4)	<sup>59</sup> <sub>27</sub> Co	NMR/ON	1972Ni01
				0.88(6)			AB	1969HuZY
							AB	1969HuZY
							NMR/ON( $\beta$ )	1996Oh02
<sup>58</sup> <sub>28</sub> Ni	1454	0.88 ps	2 <sup>+</sup>	+0.076(17)			NO/S	1975Ro06
				−0.1(3)			TF	2001KE02
					−0.10(6)		TF	1978Ha13
							CER	1974Le13
							IPAD	1974We05
<sup>59</sup> <sub>28</sub> Ni	339	83 ps	5/2 <sup>−</sup>	+0.35(15)			TF	2001KE02
	1332	0.91 ps	2 <sup>+</sup>	+0.32(6)			TF	1978Ha13
				+0.2(3)			CER	1974Le13
					+0.03(5)		ES	1972Li12
					−0.10(2)		N, R	1964Dr02
<sup>61</sup> <sub>28</sub> Ni	0	Stable	3/2 <sup>−</sup>	−0.75002(4)		<sup>17</sup> <sub>8</sub> O		1976Fu06
					+0.162(15) st		AB	1968Ch10
	67	5.34 ns	5/2 <sup>−</sup>	+0.480(6)		<sup>61</sup> <sub>28</sub> Ni	ME	1971Go31
					−0.20(3) st	<sup>61</sup> <sub>28</sub> Ni	ME	1971Go31
					−0.08(7) st	<sup>61</sup> <sub>28</sub> Ni	ME	1976Ob01
<sup>62</sup> <sub>28</sub> Ni	1173	1.39 ps	2 <sup>+</sup>	+0.33(5)			TF	2001KE02
				+0.68(14)			TF	1988Sp04
				+0.6(2)			TF	1978Ha13
					+0.05(12)		CER, R	1974Le13
						<sup>19</sup> <sub>9</sub> F 197	TDPAD	1970Bi06
<sup>63</sup> <sub>28</sub> Ni	87	1.72 $\mu$ s	5/2 <sup>−</sup>	+0.752(3)			TF	2001KE02
	1346	1.09 ps	2 <sup>+</sup>	+0.37(6)			TF	1978Ha13
				+0.9(3)			CER	1971ChZK
					+0.4(2)		NO/S	1976Kr09
							NMR/ON( $\beta$ )	2000Ri14
<sup>65</sup> <sub>28</sub> Ni	0	2.520 h	5/2 <sup>−</sup>	0.69(6)			TDPAD	2002Ge16
	0	21 s	1/2 <sup>−</sup>	+0.601(5)			NMR/ON( $\beta$ )	2004Go39
	1007	13 $\mu$ s	9/2 <sup>+</sup>	0.56(3)				
						<sup>63</sup> <sub>29</sub> Cu	AB	1968Ph04
						<sup>63</sup> <sub>29</sub> Cu	AB	1966Do01
<sup>59</sup> <sub>29</sub> Cu	0	81.5 s	3/2 <sup>−</sup>	+1.891(9)		<sup>63</sup> <sub>29</sub> Cu	AB	1968Ph04
	0	23.4 m	2 <sup>+</sup>	+1.219(3)		<sup>63</sup> <sub>29</sub> Cu	AB	1966Do01
	0	3.41 h	3/2 <sup>−</sup>	+2.14(4)		<sup>63</sup> <sub>29</sub> Cu	AB	1968Ph04
	0	9.73 m	1 <sup>+</sup>	−0.380(4)			TDPAC	1993Lo10
	41	4.77 ns	2 <sup>+</sup>	+1.10(10)			TDPAD	1973BI07
<sup>63</sup> <sub>29</sub> Cu				+1.32(3)			TDPAD	1973BI07
	390	11.1 ns	4 <sup>+</sup>	+2.67(16)		<sup>23</sup> <sub>11</sub> Na	N	1978Lu08
	0	Stable	3/2 <sup>−</sup>	2.227206(3)		<sup>11</sup> <sub>5</sub> B	N	1978Lu08
				2.2273456(14)		<sup>65</sup> <sub>29</sub> Cu	O, R	1986St16
					−0.211(4) st		Mu-X	1982Ef01
<sup>64</sup> <sub>29</sub> Cu					0.220(15) a	<sup>62</sup> <sub>29</sub> Cu 390	IPAD	1983Ka24
	4498	4.08 ns	17/2 <sup>+</sup>	+1.56(10)		<sup>63</sup> <sub>29</sub> Cu	AB	1966Do01
	0	12.7 h	1 <sup>+</sup>	−0.217(2)			TDPAD	1972BI16
	1594	20.4 ns	6 <sup>−</sup>	+1.06(3)		<sup>63</sup> <sub>29</sub> Cu	N	1978Lu08
	0	Stable	3/2 <sup>−</sup>	2.3816(2)			O, R	1972St38
<sup>65</sup> <sub>29</sub> Cu					−0.195(4) st		IPAD	1979Da20
	1115	0.29 ps	5/2 <sup>−</sup>	+4.5(9)		<sup>65</sup> <sub>29</sub> Cu	AB	1969Cu09
	0	5.1 m	1 <sup>+</sup>	−0.282(2)			TDPAD	1972BI16
	1154	0.60 $\mu$ s	6 <sup>−</sup>	+1.038(3)		<sup>65</sup> <sub>29</sub> Cu	LRIS	2004Gh13
	0	31.1 s	1 <sup>+</sup>	+2.6(3)		<sup>65</sup> <sub>29</sub> Cu	LRIS	2004Gh13
<sup>68</sup> <sub>29</sub> Cu	0	3.75 m	6 <sup>−</sup>	+1.3(6)			NMR/ON( $\beta$ )	2000Ri14
	637	2.85 m	3/2 <sup>−</sup>	+2.84(1)			TDPAD	2002Ge16
	0	2.85 m	3/2 <sup>−</sup>	+2.84(1)				
	2714	0.36 $\mu$ s	13/2 <sup>+</sup>	+1.46(16)				



Table 1 (continued)

Nucleus	$E$ (level)	$\tau_{1/2}$	$I^\pi$	$\mu$ (nm) <sup>*</sup>	$Q$ (b)	Ref. Std.	Method	Reference		
<sup>70</sup> <sub>29</sub> Cu	0	44.5 s	(6 or 3) <sup>−</sup>	(+)1.6(7) or 1.3(5)		<sup>65</sup> <sub>29</sub> Cu	LRIS	2004Gh13		
	101	33 s	(3 or 6) <sup>−</sup>	(−)3.5(4) or 3.8(7)		<sup>65</sup> <sub>29</sub> Cu	LRIS	2004Gh13		
	141	6.6 s	1 <sup>+</sup>	+1.9(2)		<sup>65</sup> <sub>29</sub> Cu	LRIS	2004Gh13		
<sup>71</sup> <sub>29</sub> Cu	0	19.5 s	3/2 <sup>−</sup>	+2.28(3)			NMR/ON( $\beta$ )	2002St99		
<sup>62</sup> <sub>30</sub> Zn	954	2.9 ps	2 <sup>+</sup>	+0.7(2)			TF	2002Ke02		
<sup>63</sup> <sub>30</sub> Zn	0	38.1 m	3/2 <sup>−</sup>	−0.28164(5)	+0.29(3)	<sup>67</sup> <sub>30</sub> Zn	OD	1969La05		
						<sup>67</sup> <sub>30</sub> Zn	OD	1969La05		
<sup>64</sup> <sub>30</sub> Zn	992	1.87 ps	2 <sup>+</sup>	+0.89(9) +0.9(2)	−0.124(12) −0.14(2) −0.32(6) or −0.26(6)		TF	2002Ke02		
							IMPAC	1979Fa06		
							ES	1976Ne06		
							ES, R	1981Ko06		
							CER	1988Sa32		
<sup>65</sup> <sub>30</sub> Zn	4635	0.1 ns	7 <sup>−</sup>	1.6(3)			RIGV	1983Ba69		
	0	244.1 d	5/2 <sup>−</sup>	+0.7690(2)	−0.023(2) −0.3(2)	<sup>67</sup> <sub>30</sub> Zn	OD	1964By01		
						<sup>67</sup> <sub>30</sub> Zn	OD	1964By01		
						<sup>67</sup> <sub>30</sub> Zn	NO/S, R	1985Ha41		
	115	0.45 ns	3/2 <sup>−</sup>	−0.8(2)		<sup>67</sup> <sub>30</sub> Zn 185	IPAD	1975We08		
	207	0.15 ns	3/2 <sup>−</sup>	+0.7(3)		<sup>67</sup> <sub>30</sub> Zn 185	IPAD	1975We08		
	1066	574 ps	9/2 <sup>+</sup>	1.1(2)		<sup>67</sup> <sub>30</sub> Zn 604	R/IPAD	1992Be51		
								1975We08		
					<sup>67</sup> <sub>30</sub> Zn 185	IPAD	1975We08			
<sup>66</sup> <sub>30</sub> Zn	1039	1.68 ps	2 <sup>+</sup>	−1.7(5) +0.80(8) +0.9(2)	−0.81(13)		TF	2002Ke02		
							IMPAC	1979Fa06		
							RIGV	1983Ba69		
<sup>67</sup> <sub>30</sub> Zn	4250	133 ps	7 <sup>−</sup>	1.0(2) h			ES, R	1981Ko06		
	0	Stable	5/2 <sup>−</sup>	+0.875479(9) +0.8752049(11)	+0.150(15)		RIGV	1983Ba69		
						<sup>1</sup> H	OP/RD, N	1967Sp04		
						<sup>37</sup> <sub>17</sub> Cl	N	1973Ep02		
	93	9.2 $\mu$ s	1/2 <sup>−</sup>	+0.587(11)			R	1969La05		
	185	1.03 ns	3/2 <sup>−</sup>	+0.50(6)			ME	1988Ik02		
604	333 ns	9/2 <sup>+</sup>	−1.097(9)		<sup>19</sup> <sub>9</sub> F 197	IPAC	1969Bo41			
<sup>68</sup> <sub>30</sub> Zn	1077	1.61 ps	2 <sup>+</sup>	+0.87(9) +0.9(3)	0.60(6)	<sup>67</sup> <sub>30</sub> Zn	TDPAD	1973Be56		
							TF	2002Ke02		
							IMPAC	1979Fa06		
<sup>69</sup> <sub>30</sub> Zn	439	13.72 h	9/2 <sup>+</sup>	1.157(2)	−0.11(2)	<sup>65</sup> <sub>30</sub> Zn	ES, R	1981Ko06		
							NMR/ON, R	1992Be51		
								1989He05		
<sup>70</sup> <sub>30</sub> Zn	885	3.7 ps	2 <sup>+</sup>	+0.76(8) +0.60(14)	−0.51(5) −0.23(2) −0.24(3)	<sup>67</sup> <sub>30</sub> Zn	NO/S	1983Oe01		
							TF	2002Ke02		
							IMPAC	1979Fa06		
							ES	1976Ne06		
<sup>71</sup> <sub>30</sub> Zn	158	3.94 h	9/2 <sup>+</sup>	1.052(6)			ES, R	1981Ko06		
						<sup>65</sup> <sub>30</sub> Zn	NMR/ON, R	1992Be51		
								1989He05		
<sup>66</sup> <sub>31</sub> Ga	66	23 ns	2 <sup>+</sup>	1.01(2)			TDPAD, R	1976Le03		
	1464	57 ns	7 <sup>−</sup>	0.90(2) +0.89(2)	0.78(4) st		TDPAD	1978Fi03		
							TDPAD	1985Ra33		
							TDPAD	1985Ra33		
	3043	0.208 ns	9 <sup>+</sup>	4.2(9)			IPAC	1987Ba45		
<sup>67</sup> <sub>31</sub> Ga	0	78.3 h	3/2 <sup>−</sup>	+1.8507(3)	0.195(5) st	<sup>69,71</sup> <sub>31</sub> Ga	AB	1968Eh02		
						<sup>69,71</sup> <sub>31</sub> Ga	AB, R	1968Eh02		
	359	49 ps	5/2 <sup>−</sup>	1.4(7)		<sup>67</sup> <sub>31</sub> Ga 3578	RIGV, R	1986Ba79		
<sup>68</sup> <sub>31</sub> Ga	3578	0.16 ns	15/2 <sup>+</sup>	−1.7(5) 0.01175(5)	0.0277(14) st			1983Ba73		
							IPAD	1986Ba79		
	0	68.1 m	1 <sup>+</sup>			<sup>69,71</sup> <sub>31</sub> Ga	AB	1962Eh02		
						<sup>69,71</sup> <sub>31</sub> Ga	AB, R	1972St38		
							TDPAD	1978Fi03		
<sup>69</sup> <sub>31</sub> Ga	0	Stable	3/2 <sup>−</sup>	+0.74(2) +0.72(2) +2.01659(5)	0.72(2) st +0.1650(8) a		TDPAD	1985Ra33		
						<sup>69</sup> <sub>31</sub> Ga	TDPAD	1985Ra33		
						<sup>23</sup> <sub>11</sub> Na	N	1954Wa37		
							R	1998Pe11		

(continued on next page)

Table 1 (continued)

Nucleus	$E$ (level)	$\tau_{1/2}$	$I^\pi$	$\mu$ (nm) <sup>*</sup>	$Q$ (b)	Ref. Std.	Method	Reference
					+0.173(3) a +0.168(5) st 0.17(3) st		R AB, R ABLFS, R	1998To99 1972St38 1983Jo02
<sup>70</sup> <sub>31</sub> Ga	879	22.7 ns	4 <sup>−</sup>	−0.26(10)		<sup>19</sup> <sub>9</sub> F 197	TDPAD	1976Ta09
<sup>71</sup> <sub>31</sub> Ga	0	Stable	3/2 <sup>−</sup>	+2.56227(2)		<sup>23</sup> <sub>11</sub> Na	N	
					+0.1040(8) +0.109(2) +0.106(3) st 0.10(2) st		R R AB, R ABLFS, R	1998Pe11 1998To99 1972St38 1983Jo02
<sup>72</sup> <sub>31</sub> Ga	0	14.1 h	3 <sup>−</sup>	−0.13224(2)	+0.52(1) st	<sup>69,71</sup> <sub>31</sub> Ga <sup>69,71</sup> <sub>31</sub> Ga	AB AB, R	1962Eh02 1972St38
<sup>67</sup> <sub>32</sub> Ge	752	111 ns	9/2 <sup>+</sup>	−0.849(12)		<sup>69</sup> <sub>32</sub> Ge 398	TDPAD	1991Le31
<sup>68</sup> <sub>32</sub> Ge	3696	0.48 ps	6 <sup>+</sup>	+2.4#		Estimate	TF	1986Ba64
	3883	132 ps	6 <sup>−</sup>	0.53(11)		<sup>74</sup> <sub>32</sub> Ge 596	RIGV	1982Ba42
	4054	118 ps	7 <sup>−</sup>	0.78(12)		<sup>74</sup> <sub>32</sub> Ge 596	RIGV	1982Ba42
	4838	1.04 ps	8 <sup>+</sup>	+0.8(3)		<sup>68</sup> <sub>32</sub> Ge 3696	TF	1986Ba64
	5050	0.49 ps	8 <sup>+</sup>	−2.2(11)		<sup>68</sup> <sub>32</sub> Ge 3696	TF	1986Ba64
<sup>69</sup> <sub>32</sub> Ge	0	39.0 h	5/2 <sup>−</sup>	0.735(7)		<sup>73</sup> <sub>32</sub> Ge	AB	1970OI02
					0.024(5) st		AB	1970OI02
<sup>70</sup> <sub>32</sub> Ge	398	2.8 μs	9/2 <sup>+</sup>	−1.001(3)			SOP/RDAD	1970Ch05
	1039	1.32 ps	2 <sup>+</sup>	+0.94(5) +0.8(2) +0.7(2) +0.9(2)			TF IMPAC TF IMPAC, R	1984Pa20 1977Fa07 1987La20 1977Fa07
					+0.03(6) or +0.09(6)		CER	1980Le16
<sup>71</sup> <sub>32</sub> Ge	0	11.2 d	1/2 <sup>−</sup>	+0.547(5)		<sup>73</sup> <sub>32</sub> Ge	AB, R	1966Ch02
	175	79 ns	5/2 <sup>−</sup>	+1.018(10)		<sup>19</sup> <sub>9</sub> F 197	TDPAD	1968Mo12
	199	20.2 ms	9/2 <sup>+</sup>	−1.0413(7)			NMR/AC	1970Be29
					0.34(5)		QIR	1975Ri03 1876Br41
<sup>72</sup> <sub>32</sub> Ge	834	3.29 ps	2 <sup>+</sup>	+0.80(7) +0.74(9) +0.7(2)			TF TF IMPAC, R	1984Pa20 1987La20 1977Fa07
					−0.13(6)		CER	1980Le16
<sup>73</sup> <sub>32</sub> Ge	0	Stable	9/2 <sup>+</sup>	−0.8794677(2)		<sup>2</sup> <sub>1</sub> H	N	1974Sa25
					−0.17(3)		AB, R	1966Ch02
	13	2.86.μs	5/2 <sup>+</sup>	1.08(3) −0.94(3)				1970OI02
					0.70(8) −0.4(3)	<sup>69</sup> <sub>32</sub> Ge 398	TDPAC TDPAC TDPAC	1993Co17 1975Ha37 1993Co17
<sup>74</sup> <sub>32</sub> Ge	596	12.5 ps	2 <sup>+</sup>	+0.87(4) +0.70(5) +0.7(2)			ME TF TF IMPAC, R	1983Pf02 1984Pa20 1987La20 1977Fa07
					−0.25(6)		CER	1980Le16
<sup>75</sup> <sub>32</sub> Ge	1204	4.9 ps	2 <sup>+</sup>	+0.8(2)			TF	1984Pa20
<sup>76</sup> <sub>32</sub> Ge	0	82.8 m	1/2 <sup>−</sup>	+0.510(5)		<sup>73</sup> <sub>32</sub> Ge	AB	1970OI02
<sup>76</sup> <sub>32</sub> Ge	563	18.6 ps	2 <sup>+</sup>	+0.84(5) +0.67(8) +0.56(12)			TF TF IMPAC, R	1984Pa20 1987La20 1977Fa07
					−0.19(6)		CER	1980Le16
<sup>68</sup> <sub>33</sub> As	2159	37 ns	(7,8) <sup>−</sup>	g  = 0.23(2)			TDPAD	1986RaZU
<sup>69</sup> <sub>33</sub> As	0	15.2 m	5/2 <sup>−</sup>	+1.58(16) 1.2(2)			NO/S AB	1988SeXX 1980Ho02
	1307	1.35 ns	9/2 <sup>+</sup>	+4.7(6) +6(2) +2.1061(2)		<sup>75</sup> <sub>33</sub> As	IPAD RIGV	1980Be32 1981Ki07
<sup>70</sup> <sub>33</sub> As	0	53 m	4 <sup>+</sup>	+2.1061(2)		<sup>75</sup> <sub>33</sub> As <sup>75</sup> <sub>33</sub> As	AB AB	1980Ho02 1980Ho02
					+0.09(2)		AB	1980Ho02
<sup>71</sup> <sub>33</sub> As	888	5.34.ns	7 <sup>−</sup>	0.75(5)			IPAD	1991Ba43
	0	65.3 h	5/2 <sup>−</sup>	(+ )1.674(2) 1.64(4)			NMR/ON AB	1976He06 1980Ho02
					−0.017(10)	<sup>72</sup> <sub>33</sub> As	NO/S	1988Wh03
<sup>72</sup> <sub>33</sub> As	1001	19.8 ns	9/2 <sup>+</sup>	+5.15(9)			TDPAD	1989Ra99
	0	26 h	2 <sup>−</sup>	−2.1566(3)		<sup>75</sup> <sub>33</sub> As	AB	1980Ho02

Table 1 (continued)

Nucleus	$E$ (level)	$\tau_{1/2}$	$I^\pi$	$\mu$ (nm) <sup>*</sup>	$Q$ (b)	Ref. Std.	Method	Reference
<sup>73</sup> <sub>33</sub> As	214	85 ns	3 <sup>+</sup>	+1.58(2)	−0.08(2)	<sup>75</sup> <sub>33</sub> As	AB	1980Ho02
	561	87 ns	(6 <sup>−</sup> )	−0.696(12)		<sup>19</sup> <sub>9</sub> F 197	TDPAD	1975Be32
	66	5.0 ns	5/2 <sup>−</sup>	+1.63(10)			TDPAD	1977Ra03
					0.356(12)	<sup>75</sup> <sub>33</sub> As	TDPAC	1963Bo26
<sup>74</sup> <sub>33</sub> As	428	5.6 $\mu$ s	9/2 <sup>+</sup>	+5.234(14)			TDPAC	1992Sc21
	0	17.8 d	2 <sup>−</sup>	−1.597(3)		<sup>75</sup> <sub>33</sub> As	SOP/RDAD	1970Be23
<sup>75</sup> <sub>33</sub> As	259	26.8 ns	(4) <sup>+</sup>	+3.24(4)		<sup>75</sup> <sub>33</sub> As	NMR/ON	1972Ka35
	0	Stable	3/2 <sup>−</sup>	+1.43948(7)		<sup>19</sup> <sub>9</sub> F 197		1970Ch10
						<sup>2</sup> <sub>1</sub> H	TDPAD, R	1976Ga23
							N	1953Ti01
					0.314(6) a			1952Je05
					+0.30(5)		Mu-X	1982Ef01
							O	1983Vo15
	265	11.9 ps	3/2 <sup>−</sup>	+1.0(2)			IPAC	1971BeWK
								1970Pi18
	280	273 ps	5/2 <sup>−</sup>	+0.92(2)			TDPAC	1989Mo14
				+0.81(8)	0.30(10)	<sup>73</sup> <sub>33</sub> As	TDPAC	1990Mo23
							IPAC	1971BeWK
<sup>76</sup> <sub>33</sub> As	0	26.3 h	2 <sup>−</sup>	(−)0.9028(10)		<sup>75</sup> <sub>33</sub> As	NMR/ON( $\beta$ )	1999Oh01
<sup>77</sup> <sub>33</sub> As				−0.906(5)	7(8)	<sup>75</sup> <sub>33</sub> As	NO/D	1958Pi43
	46	1.80 $\mu$ s	(1) <sup>+</sup>	+0.559(5)		<sup>19</sup> <sub>9</sub> F 197	AB	1961Ch10
	0	38.8 h	3/2 <sup>−</sup>	+1.2946(13)		<sup>75</sup> <sub>33</sub> As	SOP/RDAD	1971BeWJ
	264	304 ps	5/2 <sup>−</sup>	+0.74(2)			NMR/ON( $\beta$ )	1999Oh01
<sup>74</sup> <sub>34</sub> Se				+0.83(7)	<0.75		TDPAC	1989Mo14
							IPAC	1973Ch42
	476	116 $\mu$ s	9/2 <sup>+</sup>	+5.525(9)			TDPAC	1990Mo23
	632	60 ps	5/2 <sup>+</sup>	+2.5(4)			SOP/RDAD	1989Ra99
<sup>73</sup> <sub>34</sub> Se	0	7.1 h	9/2 <sup>+</sup>	0.892(13)			IPAC	1974Ch31
				0.85(7)			NMR/ON	*****
				0.86(5)		<sup>82</sup> <sub>34</sub> Se 654	NMR/ON	1987Ni13
<sup>75</sup> <sub>34</sub> Se	635	7.07 ps	2 <sup>+</sup>	0.86(5)	−0.36(7)		TF	1998Sp03
							CER	1978Le22
	1269	4.0 ps	2 <sup>+</sup>	1.1(2)		<sup>82</sup> <sub>34</sub> Se 654	TF	1998Sp03
	1363	1.86 ps	4 <sup>+</sup>	2.0(4)		<sup>82</sup> <sub>34</sub> Se 654	TF	1998Sp03
<sup>76</sup> <sub>34</sub> Se	0	118.5 d	5/2 <sup>+</sup>	0.683(10)			NMR/ON	
				0.67(4)			NMR/ON	1974Ca23
					1.1(2)		MA, R	1955Aa06
					$Q/Q(^{79}\text{Se}(\text{gs})) = 1.2578(6)$		MA, R	1955Aa06
<sup>77</sup> <sub>34</sub> Se	559	12.3 ps	2 <sup>+</sup>	0.81(5)		<sup>82</sup> <sub>34</sub> Se 654	TF	1998Sp03
				+0.8(2)			IMPAC	1969He11
				+0.8(2)			IPAC	1967Mu10
					−0.34(7)		CER	1977Le11
<sup>78</sup> <sub>34</sub> Se	1216	3.4 ps	2 <sup>+</sup>	0.70(12)		<sup>82</sup> <sub>34</sub> Se 654	TF	1998Sp03
	1332	1.52 ps	4 <sup>+</sup>	2.6(4)		<sup>82</sup> <sub>34</sub> Se 654	TF	1998Sp03
	0	Stable	1/2 <sup>−</sup>	+0.5350422(6)		<sup>23</sup> <sub>11</sub> Na	N	1978Ko39
				0.5350743(3)		<sup>1</sup> <sub>1</sub> H	N	1953We51
<sup>79</sup> <sub>34</sub> Se	250	9.56 ns	5/2 <sup>−</sup>	+1.12(3)			TDPAC	1978Ko39
					1.1(5)		TDPAC	1984Za08
	439	24 ps	5/2 <sup>−</sup>	+1.0(3)			TDPAC	1983Un02
	614	9.7 ps	2 <sup>+</sup>	0.77(5)		<sup>82</sup> <sub>34</sub> Se 654	IMPAC	1970RoZS
<sup>80</sup> <sub>34</sub> Se				+0.8(2)			TF	1998Sp03
					−0.26(9)		IMPAC	1969He11
							CER	1977Le11
	1308	4.2 ps	2 <sup>+</sup>	0.7(2)		<sup>82</sup> <sub>34</sub> Se 654	TF	1998Sp03
<sup>79</sup> <sub>34</sub> Se	1503	1.05 ps	4 <sup>+</sup>	1.6(5)		<sup>82</sup> <sub>34</sub> Se 654	TF	1998Sp03
	0	<6.5 $\times 10^4$ y	7/2 <sup>+</sup>	−1.018(15)			MA	1953Ha50
					+0.8(2)		MA, R	1989Ra99
<sup>80</sup> <sub>34</sub> Se	666	8.6 ps	2 <sup>+</sup>	0.87(5)		<sup>82</sup> <sub>34</sub> Se 654	TF	1998Sp03
				+0.8(3)			IMPAC	1969He11
					−0.31(7)		CER	1977Le11
	1449	1.95 ps	2 <sup>+</sup>	0.7(2)		<sup>82</sup> <sub>34</sub> Se 654	TF	1998Sp03
	1701	0.66 ps	4 <sup>+</sup>	2.7(10)		<sup>82</sup> <sub>34</sub> Se 654	TF	1998Sp03

(continued on next page)

Table 1 (continued)

Nucleus	$E$ (level)	$\tau_{1/2}$	$I^\pi$	$\mu$ (nm) <sup>*</sup>	$Q$ (b)	Ref. Std.	Method	Reference		
<sup>82</sup> <sub>34</sub> Se	654	13.1 ps	2 <sup>+</sup>	0.99(6) +0.9(3)	−0.22(7)	<sup>82</sup> <sub>34</sub> Se 654	TF	1978Br38		
							IMPAC	1969He11		
							CER	1977Le11		
	1735	0.96 ps	4 <sup>+</sup>	2.3(15)			TF	1998Sp03		
<sup>72</sup> <sub>35</sub> Br	0	79 s	(3 <sup>+</sup> )	0.60(10)	+0.53(2) st	<sup>82</sup> <sub>35</sub> Br	NO/S	1992Ba68		
	101	10.1 s	(1 <sup>−</sup> )	>0.7			NO/S	1992Gr20		
<sup>73</sup> <sub>35</sub> Br	241	34.7 ns	3/2 <sup>−</sup>	1.97(13)			TDPAD	1987He27		
<sup>74</sup> <sub>35</sub> Br	14	46 m	4 <sup>(+)</sup>	1.820(12)			NMR/ON	1992Pr06		
				1.68(18)			NO/S	1992Gr20		
<sup>75</sup> <sub>35</sub> Br	0	97 m	3/2 <sup>−</sup>	+0.76(18)			NO/S, NO/βS	1992Gr20		
								1992Ba68		
<sup>76</sup> <sub>35</sub> Br	0	16.1 h	1 <sup>−</sup>	0.54821(2)			<sup>79,81</sup> <sub>35</sub> Br	AB	1960Li11	
							0.249 (6) st	<sup>79</sup> <sub>35</sub> Br	AB, R	1966Br03
										2000Ha64
							1960Li11	1966Br03		
<sup>77</sup> <sub>35</sub> Br	0	57 h	3/2 <sup>−</sup>	0.9731(6) 0.9738(5) 0.92(5)	+0.53(2) st	<sup>82</sup> <sub>35</sub> Br	NMR/ON	1993Oh09		
							NMR/ON	1992Pr06		
							NO/S	1992Gr20		
							MAPON	1998Se09		
	130	9.3 ns	5/2 <sup>+</sup>	+3.30(3)	+0.331(4) st	<sup>19</sup> F 197	TDPAC	1991Gr15		
<sup>78</sup> <sub>35</sub> Br	0	6.46 m	1 <sup>+</sup>	0.13(3)			NO/S	1992Pr06		
	32	14.2 ns	(2) <sup>−</sup>	−1.12(4)			TDPAD	1973PI07		
	181	119 μs	4 <sup>(+)</sup>	+4.114(12)			NMR/AC	1974FoYO		
<sup>79</sup> <sub>35</sub> Br	0	Stable	3/2 <sup>−</sup>	+2.106400(4)	0.318(5) +0.313(3) +0.305(5) st	<sup>2</sup> <sub>1</sub> H	N	1971Br31		
							Calc efg	R	1972BI07	
								R	2004A108	
								AB, R	2001Bi17	
						2000Ha64				
					+0.331(4) st		1960Li11	1998Se09		
	217	47 ps	5/2 <sup>−</sup>	1.0(3)	+0.182(5) +0.181(4) st	<sup>79,81</sup> <sub>35</sub> Br	AB, R	1994Sp05		
	523	1.91 ps	5/2 <sup>−</sup>	2.8(8)			TF	1994Sp05		
	761	1.50 ps	7/2 <sup>−</sup>	1.9(3)			TF	1994Sp05		
<sup>80</sup> <sub>35</sub> Br	0	17.6 m	1 <sup>+</sup>	0.5140(6)			AB	1964Wh05		
					+0.196(3) st	<sup>19</sup> F 197	R	2001Bi17		
							AB, R	2000Ha64		
								1960Li11		
							AB, R	1998Se09		
	37	7.4 ns	2 <sup>−</sup>	−1.67(12)	0.163(7) 0.159(7) st	<sup>80</sup> <sub>35</sub> Br	AB, R	1973PI07		
							R	2001Bi17		
					0.173(6) st	<sup>79,81</sup> <sub>35</sub> Br	TDPAC	2000Ha64		
								1960Li11		
							AB, R	1998Se09		
	86	4.42 h	5 <sup>−</sup>	+1.3177(6)	AB		1964Wh05			
					+0.71(2) +0.69(2) st		R	2001Bi17		
							AB, R	2000Ha64		
								1960Li11		
<sup>81</sup> <sub>35</sub> Br	0	Stable	3/2 <sup>−</sup>	+2.270562(4)	+0.751(10) st	<sup>2</sup> <sub>1</sub> H	AB, R	1998Se09		
							N	1972BI07		
					+0.266(4) +0.262(3)		R	2004A108		
					+0.254(6) st		R	2001Bi17		
							AB, R	2000Ha64		
					+0.276(4) st			1960Li11		
							AB, R	1998Se09		
	276	9.7 ps	5/2 <sup>−</sup>	1.6(5)	+0.69(2) st	<sup>79,81</sup> <sub>35</sub> Br	TF	1996Ja09		
	536	37 μs	9/2 <sup>+</sup>	5.70(5)			SOP/RDAD	1972Ch34		
	767	0.54 ps	5/2 <sup>−</sup>	1.0(4)			TF	1996Ja09		
	837	1.0 ps	7/2 <sup>−</sup>	1.4(4)			TF	1996Ja09		
<sup>82</sup> <sub>35</sub> Br	0	35.3 h	5 <sup>−</sup>	+1.6270(5)			AB	1959Ga12		
					+0.69(2) st		AB, R	2000Ha64		
								1960Li11		
					+0.748(10) st		AB, R	1998Se09		
<sup>84</sup> <sub>35</sub> Br	0	31.8 m	2 <sup>−</sup>	1.9(7)			NO/S	1992Pr06		

Table 1 (continued)

Nucleus	$E$ (level)	$\tau_{1/2}$	$I^\pi$	$\mu$ (nm) <sup>*</sup>	$Q$ (b)	Ref. Std.	Method	Reference
<sup>75</sup> <sub>36</sub> Kr	0	4.3 m	5/2 <sup>+</sup>	−0.531(4) d		<sup>83</sup> <sub>36</sub> Kr	CFBLS	1995Ke04
					+1.12(12)		CFBLS	1995Ke04
<sup>76</sup> <sub>36</sub> Kr	424	17 ps	2 <sup>+</sup>	+0.7(2)		<sup>78</sup> <sub>36</sub> Kr 455	TF	2004Ku11
<sup>77</sup> <sub>36</sub> Kr	0	74.4 m	5/2 <sup>+</sup>	−0.583(3) d		<sup>83</sup> <sub>36</sub> Kr	CFBLS	1995Ke04
					+0.94(10)		CFBLS	1995Ke04
<sup>78</sup> <sub>36</sub> Kr	455	17 ps	2 <sup>+</sup>	+0.86(2)			TF	2004Ku11
				+1.08(10)			TF	1981Wa16
	1119	2.3 ps	4 <sup>+</sup>	+1.8(3)			TF	2001Me20
	1148	3.7 ps	2 <sup>+</sup>	+1.1(2)			TF	2001Me20
<sup>79</sup> <sub>36</sub> Kr	0	35.04 h	1/2 <sup>−</sup>	+0.536(2) d		<sup>83</sup> <sub>36</sub> Kr	CFBLS	1995Ke04
	130	50 s	7/2 <sup>+</sup>	−0.786(2) d		<sup>83</sup> <sub>36</sub> Kr	CFBLS	1995Ke04
					+0.40(4)		CFBLS	1995Ke04
	147	77.7 ns	5/2 <sup>−</sup>	+1.124(10)		<sup>19</sup> F 197	TDPAD	1968BI04
					0.45(3)	<sup>83</sup> <sub>36</sub> Kr 9	TDPAD	1989Ra99
<sup>80</sup> <sub>36</sub> Kr	617	8.7 ps	2 <sup>+</sup>	+0.76(10)			TF	2001Me20
	1257	1.0 ps	4 <sup>+</sup>	+1.8(6)			TF	2001Me20
	1436	7.6 ps	2 <sup>+</sup>	+1.3(7)			TF	2001Me20
<sup>81</sup> <sub>36</sub> Kr	0	2.3 × 10 <sup>5</sup> y	7/2 <sup>+</sup>	−0.908(2) d		<sup>83</sup> <sub>36</sub> Kr	CFBLS	1995Ke04
				−0.909(4)		<sup>83</sup> <sub>36</sub> Kr	LRFS	1993Ca41
					+0.644(4)	Calc efg	R	2001Ke15
					+0.64(7)		CFBLS	1995Ke04
					+0.629(13)		LRFS	1993Ca41
<sup>82</sup> <sub>36</sub> Kr	190	13.1 s	1/2 <sup>−</sup>	+0.586(2) d		<sup>83</sup> <sub>36</sub> Kr	CFBLS	1995Ke04
	777	4.5 ps	2 <sup>+</sup>	+0.80(3)			TF	2001Me20
	1821	0.7 ps	4 <sup>+</sup>	+1.2(8)			TF	2001Me20
<sup>83</sup> <sub>36</sub> Kr	0	Stable	9/2 <sup>+</sup>	−0.970669(3)			N, AB	1946Ke05
								1968Br16
					+0.259(1)	Calc efg	R	2001Ke15
					+0.26(3)		CFBLS	1995Ke04
					+0.253(5)		AB	1963Fa01
	9	147 ns	7/2 <sup>+</sup>	−0.943(2)		<sup>83</sup> <sub>36</sub> Kr	ME	1969Ca06
					+0.507(3)	Calc efg	R	2001Ke15
					+0.495(10)	<sup>83</sup> <sub>36</sub> Kr	ME	1977Ho99
<sup>84</sup> <sub>36</sub> Kr	42	1.83 h	1/2 <sup>−</sup>	+0.591(2) d		<sup>83</sup> <sub>36</sub> Kr	CFBLS	1995Ke04
	882	4.1 ps	2 <sup>+</sup>	+0.53(3)			TF	2001Me20
	3236	1.84 μs	8 <sup>+</sup>	−1.97(2)			TDPAD	1982Za04
	5373	45 ns	12 <sup>+</sup>	+2.04(12)			TDPAD	1985Ro22
				+2.0(2)			TDPAD	1990RO10
<sup>85</sup> <sub>36</sub> Kr	0	10.76 y	9/2 <sup>+</sup>	−1.005(2) d		<sup>83</sup> <sub>36</sub> Kr	CFBLS	1995Ke04
				1.005(2)		<sup>83</sup> <sub>36</sub> Kr	O	1955Ra13
				−1.0055(4)		<sup>83</sup> <sub>36</sub> Kr	LRFS	1993Ca41
					+0.443(3)	Calc efg	R	2001Ke15
					+0.44(5)		CFBLS	1995Ke04
					+0.433(8)		LRFS	1993Ca41
<sup>86</sup> <sub>36</sub> Kr	305	4.48 h	1/2 <sup>−</sup>	+0.633(2) d		<sup>83</sup> <sub>36</sub> Kr	CFBLS	1995Ke04
	1565	0.30 ps	2 <sup>+</sup>	+2.2(3)			TF	2001Me20
<sup>87</sup> <sub>36</sub> Kr	0	76.3 m	5/2 <sup>+</sup>	−1.023(2) d		<sup>83</sup> <sub>36</sub> Kr	CFBLS	1995Ke04
					−0.30(3)		CFBLS	1995Ke04
<sup>89</sup> <sub>36</sub> Kr	0	3.15 m	3/2 <sup>+</sup>	−0.330(3) d		<sup>83</sup> <sub>36</sub> Kr	CFBLS	1995Ke04
					+0.16(2)		CFBLS	1995Ke04
<sup>91</sup> <sub>36</sub> Kr	0	8.57 s	5/2 <sup>+</sup>	−0.583(2) d		<sup>83</sup> <sub>36</sub> Kr	CFBLS	1995Ke04
					+0.30(3)		CFBLS	1995Ke04
<sup>93</sup> <sub>36</sub> Kr	0	1.286 s	1/2 <sup>+</sup>	−0.413(2) d		<sup>83</sup> <sub>36</sub> Kr	CFBLS	1995Ke04
<sup>95</sup> <sub>36</sub> Kr	0	0.78 s	1/2 <sup>+</sup>	−0.410(3) d		<sup>83</sup> <sub>36</sub> Kr	CFBLS	1995Ke04
<sup>76</sup> <sub>37</sub> Rb	0	39 s	1 <sup>(−)</sup>	−0.3726228(14)		<sup>87</sup> <sub>37</sub> Rb	ABLS	1986Du16
								1981Th04
					+0.38(15) st		ABLS	1981Th04
<sup>77</sup> <sub>37</sub> Rb	0	3.8 m	3/2 <sup>−</sup>	+0.6544680(16)		<sup>87</sup> <sub>37</sub> Rb	ABLS	1986Du16
								1981Th04
				+0.652(7)		<sup>85</sup> <sub>37</sub> Rb	AB	1978Ek04
					+0.70(4) st		ABLS	1981Th04
<sup>78</sup> <sub>37</sub> Rb	103	6.3 m	4 <sup>−</sup>	+2.549(2)		<sup>87</sup> <sub>37</sub> Rb	ABLS	1981Th04

(continued on next page)



Table 1 (continued)

Nucleus	$E$ (level)	$\tau_{1/2}$	$I^\pi$	$\mu$ (nm) <sup>*</sup>	$Q$ (b)	Ref. Std.	Method	Reference
<sup>88</sup> <sub>37</sub> Rb	0	17.7 m	2 <sup>−</sup>	0.508(5) 0.50761(1) +0.512(3)	+0.127(1) st		TDPAD, R	1971St12
					+0.13(2) st		ABLS	1981Th04
						<sup>85</sup> <sub>37</sub> Rb	AB	1968Va03
						<sup>87</sup> <sub>37</sub> Rb	AB, R	1979Ek02
						<sup>87</sup> <sub>37</sub> Rb	ABLS	1981Th04
<sup>89</sup> <sub>37</sub> Rb	0	15.2 m	3/2 <sup>−</sup>	+2.3836(7) +2.378(4) +2.377(5)	−0.01(10) st		ABLS	1981Th04
						<sup>87</sup> <sub>37</sub> Rb	ABLS	1981Th04
						<sup>85</sup> <sub>37</sub> Rb	AB	1979Ek02
						<sup>87</sup> <sub>37</sub> Rb	CFBLS	1979K103
						<sup>87</sup> <sub>37</sub> Rb	ABLS	1981Th04
<sup>90</sup> <sub>37</sub> Rb	107	4.26 m	3 <sup>−</sup>	+1.6160(6) +1.612(5)	0.16(3) st		CFBLS	1979K103
						<sup>87</sup> <sub>37</sub> Rb	ABLS	1981Th04
						<sup>85</sup> <sub>37</sub> Rb	AB	1979Ek02
<sup>91</sup> <sub>37</sub> Rb	0	58 s	3/2 <sup>(−)</sup>	+2.1815(15) +2.177(5) +2.177(3)	+0.20(5) st		ABLS	1981Th04
						<sup>87</sup> <sub>37</sub> Rb	ABLS	1981Th04
						<sup>87</sup> <sub>37</sub> Rb	CFBLS	1979K103
						<sup>85</sup> <sub>37</sub> Rb	AB	1979Ek02
							ABLS	1981Th04
<sup>93</sup> <sub>37</sub> Rb	0	5.85 s	5/2 <sup>−</sup>	+1.410(2) +1.400(6)	0.14(3) st		CFBLS	1979K103
						<sup>87</sup> <sub>37</sub> Rb	ABLS	1981Th04
						<sup>85</sup> <sub>37</sub> Rb	CFBLS	1979K103
							ABLS	1981Th04
							CFBLS	1979K103
<sup>94</sup> <sub>37</sub> Rb	0	2.73 s	3 <sup>(−)</sup>	+1.498(2)	+0.18(4) st		ABLS	1981Th04
					0.27(6) st	<sup>87</sup> <sub>37</sub> Rb	ABLS	1981Th04
<sup>95</sup> <sub>37</sub> Rb	0	0.38 s	5/2 <sup>−</sup>	+1.334(3)	+0.16(5) st		ABLS	1981Th04
						<sup>87</sup> <sub>37</sub> Rb	ABLS	1981Th04
<sup>96</sup> <sub>37</sub> Rb	0	0.20 s	2 <sup>+</sup>	+1.466(2)	+0.21(7) st		ABLS	1981Th04
						<sup>87</sup> <sub>37</sub> Rb	ABLS	1981Th04
<sup>97</sup> <sub>37</sub> Rb	0	0.17 s	3/2 <sup>−</sup>	+1.841(2)	+0.25(6) st		ABLS	1981Th04
						<sup>87</sup> <sub>37</sub> Rb	ABLS	1981Th04
<sup>77</sup> <sub>38</sub> Sr	0	9 s	5/2 <sup>+</sup>	−0.348(4)	+0.58(4) st		ABLS	1981Th04
						<sup>87</sup> <sub>38</sub> Sr	CFBLS	1992Li11
						<sup>87</sup> <sub>38</sub> Sr	CFBLS	1992Li11
						<sup>87</sup> <sub>38</sub> Sr	CFBLS	1990Bu12
							R	2002Ma09
<sup>79</sup> <sub>38</sub> Sr	0	2.25 m	(3/2 <sup>−</sup> )	−0.474(4)	+0.708(6) +0.73(6) st		CFBLS	1990Bu12
						<sup>87</sup> <sub>38</sub> Sr	CFBLS	1990Bu12
						<sup>87</sup> <sub>38</sub> Sr	ABLFS	1987An02
							R	2002Ma09
							CFBLS	1990Bu12
<sup>81</sup> <sub>38</sub> Sr	0	2.3 m	1/2 <sup>−</sup>	+0.543(4) +0.542(4)		<sup>87</sup> <sub>38</sub> Sr	CFBLS	1990Bu12
						<sup>87</sup> <sub>38</sub> Sr	ABLFS	1987An02
						<sup>84</sup> <sub>38</sub> Sr 793	TF	1989Ku11
						<sup>84</sup> <sub>38</sub> Sr 793	TF	1989Ku11
						<sup>84</sup> <sub>38</sub> Sr 793	TF	1989Ku11
<sup>82</sup> <sub>38</sub> Sr	2817 3243 3623 4424	3.0 ps — — 0.9 ps	5 <sup>−</sup> 8 <sup>+</sup> 8 <sup>+</sup> 10 <sup>+</sup>	+2(2) +5.6(8) +5.6(8) +11(5)		<sup>84</sup> <sub>38</sub> Sr 793	TF	1989Ku11
						<sup>84</sup> <sub>38</sub> Sr 793	TF	1989Ku11
						<sup>84</sup> <sub>38</sub> Sr 793	TF	1989Ku11
						<sup>84</sup> <sub>38</sub> Sr 793	TF	1989Ku11
						<sup>84</sup> <sub>38</sub> Sr 793	TF	1989Ku11
<sup>83</sup> <sub>38</sub> Sr	0	32.4 h	7/2 <sup>+</sup>	−0.829(2) −0.8298(3)		<sup>87</sup> <sub>38</sub> Sr	CFBLS	1990Bu12
						<sup>87</sup> <sub>38</sub> Sr	ABLFS	1987An02
							R	2002Ma09
						<sup>87</sup> <sub>38</sub> Sr	CFBLS	1990Bu12
						<sup>87</sup> <sub>38</sub> Sr	ABLFS	1987An02
<sup>84</sup> <sub>38</sub> Sr	259 793 2769 3332	5.0 s 3.2 ps 9.5 ps 157 ps	1/2 <sup>−</sup> 2 <sup>+</sup> 5 <sup>−</sup> 8 <sup>+</sup>	+0.581(4) +0.84(9) +8.0(10) −1(2)	+0.761(12) +0.78(7) st +0.82(5) st	<sup>87</sup> <sub>38</sub> Sr <sup>87</sup> <sub>38</sub> Sr <sup>87</sup> <sub>38</sub> Sr	CFBLS ABLFS CFBLS	1990Bu12 1987An02 1990Bu12
						<sup>84</sup> <sub>38</sub> Sr 793	TF	1988Ku01
						<sup>84</sup> <sub>38</sub> Sr 793	TF	1989Ku11
						<sup>84</sup> <sub>38</sub> Sr 793	TF	1989Ku11
						<sup>84</sup> <sub>38</sub> Sr 793	TF	1989Ku11
	3488 3680 4448 4534	4.4 ps 3.3 ps 2.2 ps 1.66 ps	7 <sup>−</sup> 8 <sup>+</sup> 10 <sup>+</sup> 10 <sup>+</sup>	−1.1(6) +4.2(14) +7.2(8) +2.0(10)		<sup>84</sup> <sub>38</sub> Sr 793 <sup>84</sup> <sub>38</sub> Sr 793 <sup>84</sup> <sub>38</sub> Sr 793 <sup>84</sup> <sub>38</sub> Sr 793	TF TF TF TF	1981Br20 1989Ku11 1989Ku11 1989Ku11
						<sup>84</sup> <sub>38</sub> Sr 793	TF	1989Ku11
						<sup>84</sup> <sub>38</sub> Sr 793	TF	1989Ku11
						<sup>84</sup> <sub>38</sub> Sr 793	TF	1989Ku11
						<sup>84</sup> <sub>38</sub> Sr 793	TF	1989Ku11
	4636 0	2.5 ps 64.8 d	9 <sup>−</sup> 9/2 <sup>+</sup>	0(4) −1.000(2) −1.0005(3)		<sup>84</sup> <sub>38</sub> Sr 793 <sup>87</sup> <sub>38</sub> Sr <sup>87</sup> <sub>38</sub> Sr	TF CFBLS ABLFS	1989Ku11 1990Bu12 1987An02
							R	2002Ma09
						<sup>87</sup> <sub>38</sub> Sr	CFBLS	1990Bu12
						<sup>87</sup> <sub>38</sub> Sr	CFBLS	1990Bu12
						<sup>87</sup> <sub>38</sub> Sr	ABLFS	1987An02
<sup>85</sup> <sub>38</sub> Sr	239	68 m	1/2 <sup>−</sup>	+0.600(4) +0.599(2)	+0.282(15) +0.29(3) st	<sup>87</sup> <sub>38</sub> Sr <sup>87</sup> <sub>38</sub> Sr <sup>87</sup> <sub>38</sub> Sr	CFBLS CFBLS ABLFS	1990Bu12 1990Bu12 1987An02

(continued on next page)

Table 1 (continued)

Nucleus	$E$ (level)	$\tau_{1/2}$	$I^\pi$	$\mu$ (nm) <sup>*</sup>	$Q$ (b)	Ref. Std.	Method	Reference
<sup>86</sup> <sub>38</sub> Sr	1077	1.46 ps	2 <sup>+</sup>	+0.55(10)			TF	1988Ku01
	2956	457 ns	8 <sup>+</sup>	−1.93(2)			TDPAD	1978Ha52
<sup>87</sup> <sub>38</sub> Sr	0	Stable	9/2 <sup>+</sup>	−1.0928(7)		<sup>23</sup> <sub>11</sub> Na	OP/RD	1972Ol01
				−1.0936030(13)		<sup>2</sup> <sub>1</sub> H	N	1974Sa25
					+0.33(2)		R	2002Ma09
					+0.34(2) st		AB	1977He21
	388	2.80 h	1/2 <sup>−</sup>	+0.624(4)		<sup>87</sup> <sub>38</sub> Sr	CFBLS	1990Bu12
				+0.788(9)		<sup>87</sup> <sub>38</sub> Sr	ABLFS	1987An02
<sup>88</sup> <sub>38</sub> Sr	1836	0.152 ps	2 <sup>+</sup>	+2.3(3)			TF	1988Ku01
<sup>89</sup> <sub>38</sub> Sr	0	50.5 d	5/2 <sup>+</sup>	−1.147(2)		<sup>87</sup> <sub>38</sub> Sr	CFBLS	1990Bu12
				−1.1481(8)		<sup>87</sup> <sub>38</sub> Sr	ABLFS	1987An02
					−0.271(9)		R	2002Ma09
					−0.28(3) st	<sup>87</sup> <sub>38</sub> Sr	CFBLS	1990Bu12
					−0.32(2) st	<sup>87</sup> <sub>38</sub> Sr	ABLFS	1987An02
<sup>91</sup> <sub>38</sub> Sr	0	9.5 h	5/2 <sup>+</sup>	−0.885(2)		<sup>87</sup> <sub>38</sub> Sr	CFBLS	1990Bu12
					+0.045(11)		R	2002Ma09
					+0.047(12)	<sup>87</sup> <sub>38</sub> Sr	CFBLS	1990Bu12
	94	88.9 ns	3/2 <sup>+</sup>	−0.35(2)			TDPAC	1993Wo07
				0.120(2)			TDPAC	1994Ka40
<sup>93</sup> <sub>38</sub> Sr	0	7.4 m	5/2 <sup>+</sup>	−0.793(2)		<sup>87</sup> <sub>38</sub> Sr	CFBLS	1990Bu12
					+0.258(11)		R	2002Ma09
					+0.26(3)	<sup>87</sup> <sub>38</sub> Sr	CFBLS	1990Bu12
<sup>95</sup> <sub>38</sub> Sr	0	10.3 m	1/2 <sup>−</sup>	−0.537(2)		<sup>87</sup> <sub>38</sub> Sr	CFBLS	1990Bu12
<sup>97</sup> <sub>38</sub> Sr	0	0.40 s	1/2 <sup>−</sup>	−0.498(2)		<sup>87</sup> <sub>38</sub> Sr	CFBLS	1990Bu12
<sup>98</sup> <sub>38</sub> Sr	144	2.8 ns	2 <sup>+</sup>	0.76(14)			IPAC	1989Wo05
<sup>99</sup> <sub>38</sub> Sr	0	0.269 s	3/2 <sup>+</sup>	−0.261(5)		<sup>87</sup> <sub>38</sub> Sr	CFBLS	1991Li05
					0.84(8)	<sup>87</sup> <sub>38</sub> Sr	CFBLS	1991Li05
<sup>83</sup> <sub>39</sub> Y	145	119 ps	(7/2 <sup>+</sup> )	+2.1(6)			IMPAD	1990Bh03
	595	5.4 ps	(13/2 <sup>+</sup> )	+8(3)			IMPAD	1990Bh03
				+4.4(7)			TF	1998LuZU
	1406	1.0 ps	(17/2 <sup>+</sup> )	+8(2)			TF	1998LuZU
	2371	0.6 ps	(21/2 <sup>+</sup> )	+11(2)			TF	1998LuZU
	2560	46 ps	(17/2 <sup>−</sup> )	+2.5(5)			IMPAD	1990Bh06
	3451		(25/2 <sup>+</sup> )	+7.0(12)			TF	1998LuZU
	4643		(29/2 <sup>+</sup> )	+8(2)			TF	1998LuZU
	5983		(33/2 <sup>+</sup> )	+8(2)			TF	1998LuZU
<sup>85</sup> <sub>39</sub> Y	20	4.9 h	9/2 <sup>+</sup>	6.2(5)		<sup>87</sup> <sub>39</sub> Y 381	NO/S	1988Be46
	266	170 ns	5/2 <sup>−</sup>	+1.36(2)			TDPAD	2000Io02
				+1.33(8)			TDPAD	1982RaZY
<sup>86</sup> <sub>39</sub> Y	0	14.5 h	4 <sup>−</sup>	<0.6		<sup>87</sup> <sub>39</sub> Y 381	NO/S	1988Be46
	218	46 m	8 <sup>+</sup>	4.8(3)		<sup>87</sup> <sub>39</sub> Y 381	NO/S	1988Be46
	243	28.5 ns	2 <sup>−</sup>	−1.06(6)			TDPAC	1968Tr11
	302	125 ns	7 <sup>−</sup>	−0.58(2)			TDPAD	2000Io02
<sup>87</sup> <sub>39</sub> Y	381	12.7 h	9/2 <sup>+</sup>	6.06(7)			NMR/ON	1991Hi04
				6.1 (+8/−2)			BFNO	1978Ma02
<sup>88</sup> <sub>39</sub> Y	675	14 ms	8 <sup>+</sup>	+4.87(5)			NMR/ON	1980Ki01
<sup>89</sup> <sub>39</sub> Y	0	Stable	1/2 <sup>−</sup>	−0.1374154(3)		<sup>2</sup> <sub>1</sub> H	N	1977Ha12
				−0.1374208(4)		<sup>14</sup> <sub>7</sub> N	N	1965Ba42
								1954Br09
	909	16.1 s	9/2 <sup>+</sup>	6.23(7)			NMR/ON	1991Hi04
				Positive sign			NMR/ON(β)	1996Oh03
<sup>90</sup> <sub>39</sub> Y	0	64.1 h	2 <sup>−</sup>	−1.630(8)		<sup>89</sup> <sub>39</sub> Y	AB	1962Pe01
					−0.155(3)		AB	1962Pe01
	203	250 ps	3 <sup>−</sup>	−0.85(7)			IPAC	1974K106
	682	3.19 h	7 <sup>+</sup>	5.1(5)		<sup>87</sup> <sub>39</sub> Y 381	NO/S	1988Be46
<sup>91</sup> <sub>39</sub> Y	0	58.5 d	1/2 <sup>−</sup>	0.1641(8)		<sup>89</sup> <sub>39</sub> Y	AB	1962Pe21
	556	49.7 m	9/2 <sup>+</sup>	5.96(4)			NMR/ON	1991Be18
				5.97(7)			NMR/ON	1991Hi04
<sup>84</sup> <sub>40</sub> Zr	540	14.1 ps	2 <sup>+</sup>	+0.5(7)			CRDTF	1999Te02
				1.0(2)			TF	1992Mo07
	1263	2.8 ps	4 <sup>+</sup>	+3(3)			CRDTF	1999Te02
				1.6(12)			TF	1992Mo07
	2136	1.8 ps	6 <sup>+</sup>	+1(3)			CRDTF	1999Te02
				11(7)			TF	1992Mo07



Table 1 (continued)

Nucleus	$E$ (level)	$\tau_{1/2}$	$I^\pi$	$\mu$ (nm) <sup>*</sup>	$Q$ (b)	Ref. Std.	Method	Reference
<sup>86</sup> Zr	3088	1.4 ps	8 <sup>+</sup>	12(5)			TF	1992Mo07
	4067	1.0 ps	10 <sup>+</sup>	5(8)			TF	1992Mo07
	5134	0.6 ps	12 <sup>+</sup>	11(8)			TF	1992Mo07
	6300	0.35 ps	14 <sup>+</sup>	18(7)			TF	1992Mo07
	—	—	8 <sup>+</sup> –14 <sup>+</sup>	avge $g = +0.87(10)$			TF	1992Mo07
	—	—	5,7,9 <sup>−</sup>	avge $g = +0.5(2)$			TF	1995Mo02
	3298	62 ps	8 <sup>+</sup>	−0(3)			CRDTF	1999Te02
				+2(4)			CRDTF	1999Te02
				−0.2(7)			IMPAD	1995We03
				−8(5)			TF	1995Mo02
	3532	<4 ps	8 <sup>+</sup>	+15(12)			CRDTF	1999Te02
	—	—		+10(2)[avge 8+/10+]			TF	1995Mo02
								1992Mo07
	4326	2.1 ps	10 <sup>+</sup>	−7(11)			CRDTF	1999Te02
				−5(10)			TF	1995Mo02
								1992Mo07
<sup>87</sup> Zr	5396	2.6 ps	12 <sup>+</sup>	−20(9)			CRDTF	1999Te02
				−4(10)			TF	1995Mo02
								1992Mo07
	5524	—	12 <sup>+</sup>	+7(2)			TF	1995Mo02
								1992Mo07
	6321	5.2 ps	14 <sup>+</sup>	+30(8)			CRDTF	1999Te02
<sup>88</sup> Zr				+28(6)			CRDTF	1998Ju10
				+26(9)			TF	1995Mo02
								1992Mo07
	0	1.68 h	9/2 <sup>+</sup>	−0.895(5)	+0.42(5)	<sup>91</sup> Zr	CLS	2003Th03
<sup>89</sup> Zr	336	14.0 s	1/2 <sup>−</sup>	+0.642(16)		<sup>91</sup> Zr	CLS	2003Th03
	2889	1.32 μs	8 <sup>+</sup>	−1.81(2)		<sup>91</sup> Zr	CLS	2003Th03
				−1.60(16)			TDPAD	1978Ha52
					+0.51(3)	<sup>91</sup> Zr	TDPAD	1978Ki06
<sup>90</sup> Zr							TDPAD	1985Ra09
							TFLD	1986Be06
	0	78.4 h	9/2 <sup>+</sup>	−1.046(11)		<sup>91</sup> Zr	CLS	2003Th03
				−1.08(2)			NMR/ON(β)	1996Oh03
				−1.07(3)			NMR/ON	1997Hi06
					+0.28(10)	<sup>91</sup> Zr	CLS	2003Th03
<sup>91</sup> Zr	588	4.16 m	1/2 <sup>−</sup>	+0.795(18)		<sup>91</sup> Zr	CLS	2003Th03
	2995	5.2 ns	21/2 <sup>+</sup>	+9.4(4)			TDPAD	1988Ba11
	2186	0.087 ps	2 <sup>+</sup>	+2.5(4)			TF	2000Ja11
	2319	0.8 s	5 <sup>−</sup>	6.25(13)			NMR/ON	1987Ed02
	2748	140 ps	3 <sup>−</sup>	+3.0(2)			TF	2000Ja11
	3589	134 ns	8 <sup>+</sup>	+10.84(6)			TDPAD	1977Ha49
<sup>92</sup> Zr					−0.51(3)	<sup>91</sup> Zr	TDPAD	1978Ha52
							TFLD	1985Ra09
								1986Be06
	0	Stable	5/2 <sup>+</sup>	−1.30362(2)	−0.176(3)	<sup>2</sup> H	N	1957Br26
					(−)0.257(13)	Calc efg	MS	2000Ke03
					−0.206(10)		R	1993Yo99
<sup>93</sup> Zr					−0.23(2) a		AB	1989Ra17
							R	1998Bo35
	2287	29 ns	15/2 <sup>−</sup>	+5.25(8)			TDPAD	1976Ba02
	3167	3.6 μs	21/2 <sup>+</sup>	+9.82(8)		<sup>90</sup> Zr 3589	TDPAD	1982RaZR
					(−)0.86(5)	<sup>91</sup> Zr	TDPAD	1985Ra09
	934	5.0 ps	2 <sup>+</sup>	−0.36(2)			TF	1999Ja13
<sup>94</sup> Zr				−0.06(10)			TF	1980Ha31
	1495	102 ps	4 <sup>+</sup>	−2.0(4)			TF	1999Ja13
	918	7.7 ps	2 <sup>+</sup>	−0.66(3)			TF	1999Ja13
				−0.52(12)			TF	1980Ha31
				−0.10(10)		<sup>110</sup> Cd 658	IMPAC	1978Ge19
	1470	500 ps	4 <sup>+</sup>	−3.2(16)			TF	1999Ja13
<sup>95</sup> Zr	0	64.0 d	5/2 <sup>+</sup>	1.13(2)	+0.22(2)	<sup>90</sup> Zr 2319	NMR/ON	1991Be18
					(+)0.29(5)	$Q$ estimate	MAPON	1998Se01

(continued on next page)

Table 1 (continued)

Nucleus	$E$ (level)	$\tau_{1/2}$	$I^\pi$	$\mu$ (nm) <sup>*</sup>	$Q$ (b)	Ref. Std.	Method	Reference
<sup>96</sup> <sub>40</sub> Zr	1750	0.57 ps	2 <sup>+</sup>	+0.06(14)			TF	2003Ku11
	1897	68 ps	3 <sup>-</sup>	+2.9(5)			TF	2003Ku11
<sup>97</sup> <sub>40</sub> Zr	0	16.8 h	1/2 <sup>+</sup>	-0.937(5)		<sup>91</sup> <sub>40</sub> Zr	CLS	2003Th03
	1264	102 ns	7/2 <sup>+</sup>	+1.37(14)			TDPAC	1985Be20
<sup>99</sup> <sub>40</sub> Zr	0	16.8 h	1/2 <sup>+</sup>	-0.930(4)		<sup>91</sup> <sub>40</sub> Zr	CLS	2003Th03
	122	1.07 ns	3/2 <sup>+</sup>	+0.42(6)			IPAC	1995Wo01
<sup>100</sup> <sub>40</sub> Zr	213	0.61 ns	2 <sup>+</sup>	+0.60(6)			IPAC	2004Sm04
				0.52(12)			IPAC	1989Wo05
				0.44(10)			IPAC	1980Wo09
<sup>101</sup> <sub>40</sub> Zr	0	2.4 s	3/2 <sup>+</sup>	-0.272(8)	+0.81(6)	<sup>91</sup> <sub>40</sub> Zr	CLS	2003Th03
						<sup>91</sup> <sub>40</sub> Zr	CLS	2002Ca37
<sup>102</sup> <sub>40</sub> Zr	152	1.9 ns	2 <sup>+</sup>	+0.44(10)			IPAC	2004Sm04
<sup>87</sup> <sub>41</sub> Nb	2412	58 ps	17/2 <sup>-</sup>	+7.0(9)			IMPAD	1995We03
	2491	13.8 ps	21/2 <sup>+</sup>	+4.3(14)			IMPAD	1995We03
				+3.8(12)			CRDTF	1998Ju02
	2858	0.8 ps	21/2 <sup>+</sup>	-6(11)			CRDTF	1999Te02
	3217	0.6 ps	23/2 <sup>+</sup>	+16(9)			CRDTF	1999Te02
	3443	1.7 ps	25/2 <sup>+</sup>	+3(2)			CRDTF	1999Te02
	3739	—	25/2 <sup>+</sup>	+1(3)			CRDTF	1999Te02
	4127	3.0 ps	25/2 <sup>-</sup>	+6(5)			CRDTF	1999Te02
	5010	3.5 ps	29/2 <sup>-</sup>	+7(2)			CRDTF	1999Te02
				+8(3)			CRDTF	1998Ju02
<sup>89</sup> <sub>41</sub> Nb	0	2.0 h	9/2 <sup>+</sup>	6.216(5)			NMR/ON	1997Hi06
	2193	14 ns	21/2 <sup>+</sup>	+3.40(7)			TDPAD	1994Kr01
<sup>90</sup> <sub>41</sub> Nb	0	14.6 h	8 <sup>+</sup>	4.961(4)	+0.046(7)	<sup>93</sup> <sub>41</sub> Nb	NMR/ON	1981Ha24
						<sup>95</sup> <sub>41</sub> Nb est $Q$	MAPON	1998Se01
	122	66 $\mu$ s	6 <sup>+</sup>	+3.72(2)			TDPAD	1975Ho16
	1881	477 ns	11 <sup>-</sup>	+8.78(3)			TDPAD	1978Ha52
<sup>91</sup> <sub>41</sub> Nb	1985	10 ns	13/2 <sup>-</sup>	+9.14(13)			TDPAD	1977ZaZW
	2037	3.4 $\mu$ s	17/2 <sup>-</sup>	+10.82(14)			TDPAD	1977Ha49
				+10.81(15)			TDPAD	1979Pi05
	3467	0.9 ns	21/2 <sup>+</sup>	+12(2)			IPAD	1977Ba34
<sup>92</sup> <sub>41</sub> Nb	135	10.15 d	2 <sup>+</sup>	(+) 6.137(4)		<sup>93</sup> <sub>41</sub> Nb	NMR/ON	1981Ha24
	225	4.3 $\mu$ s	2 <sup>-</sup>	-1.398(14)			SOPAD, TDPAD	1974Le05
	2203	167 ns	11 <sup>-</sup>	+9.7(3)			TDPAD	1977Br12
<sup>93</sup> <sub>41</sub> Nb	0	Stable	9/2 <sup>+</sup>	+6.1705(3)		<sup>45</sup> <sub>21</sub> Sc	N, O	1951Sh33,
								1947Me27
					-0.32(2) a		Mu-X	1973Po15
					-0.37(2)		AB, R	1989Ra99
<sup>95</sup> <sub>41</sub> Nb	0	35.2 d	9/2 <sup>+</sup>	6.141(5)		<sup>93</sup> <sub>41</sub> Nb	NMR/ON	1986Ed01
				6.140(6)		<sup>93</sup> <sub>41</sub> Nb	NMR/ON	1985Oh08
				6.143(5)		<sup>93</sup> <sub>41</sub> Nb	NMR/ON	1981Ha24,
								1977Ko31
				6.004(12)			BFNMR/ON	1989Ra99
					$Q$ negative if			1992Be50
					$V_{zz}(\text{NbZr}) + \text{ve}$			
<sup>96</sup> <sub>41</sub> Nb	0	23.4 h	6 <sup>+</sup>	4.976(4)		<sup>93</sup> <sub>41</sub> Nb	NMR/ON	1986Ed01
				4.975(4)		<sup>93</sup> <sub>41</sub> Nb	NMR/ON	1985Oh08
<sup>97</sup> <sub>41</sub> Nb	0	72.1 m	9/2 <sup>+</sup>	6.153(5)			NMR/ON	1991Be18
				7.3(14)		<sup>95</sup> <sub>41</sub> Nb	NO/S	1976Kr01
<sup>88</sup> <sub>42</sub> Mo	—	—	6,8 <sup>+</sup>	avge $g = +0.5(3)$			IMPAD	1995We03
<sup>89</sup> <sub>42</sub> Mo	2584	9.5 ns	21/2 <sup>+</sup>	+8.3(4)		<sup>90</sup> <sub>42</sub> Mo 2875	TDPAD	1995We12
<sup>90</sup> <sub>42</sub> Mo	2594	16 ps	5 <sup>-</sup>	+5.5(14)			IMPAD	1994We09
	2875	1.1 $\mu$ s	8 <sup>+</sup>	-1.391(14)			TDPAD	1978Ha52
					0.58(3)	<sup>92</sup> <sub>42</sub> Mo 2760	TDPAD	1985Ra09
	4842	39 ps	11 <sup>-</sup>	+4.6(14)			IMPAD	1994We09
	4556	526 ps	12 <sup>+</sup>	+6.0(7)			IMPAD	1994We09
<sup>91</sup> <sub>42</sub> Mo	2267	47 ns	21/2 <sup>+</sup>	+8.81(8)		<sup>90</sup> <sub>42</sub> Mo 2875	TDPAD	1983Ra08
				+8.97(9)			TDPAD	1977Ha49
	2279	38 ns	17/2 <sup>-</sup>	+4.51(6)		<sup>90</sup> <sub>42</sub> Mo 2875	TDPAD	1983Ra08
<sup>92</sup> <sub>42</sub> Mo	1509	0.38 ps	2 <sup>+</sup>	+2.3(3)			TF	2001Ma17
	2760	190 ns	8 <sup>+</sup>	+11.30(5)			TDPAD	1977Ha49
				+11.35(8)			TDPAD, R	1977Ku22
					$Q$ (negative)		TDPAD	1991Ha04

Table 1 (continued)

Nucleus	$E$ (level)	$\tau_{1/2}$	$I^\pi$	$\mu$ (nm) <sup>*</sup>	$Q$ (b)	Ref. Std.	Method	Reference
<sup>93</sup> <sub>42</sub> Mo <sup>94</sup> <sub>42</sub> Mo	4486	9.2 ns	11 <sup>−</sup>	+13.9(3) +14.17(13)	0.34	B(E2) est	TDPAD	1985Ra09
	2425	6.85 h	21/2 <sup>+</sup>	(+ )9.93(8)			TDPAD, R	1977Ku22
	871	2.9 ps	2 <sup>+</sup>	+0.62(9)		<sup>95</sup> <sub>42</sub> Mo	NMR/ON	1981Ha12
					−0.13(8) or +0.01(8)		TF	2001Ma17
	2956	98 ns	8 <sup>+</sup>	+10.46(7) +10.54(12)			CER	1976Pa13
<sup>95</sup> <sub>42</sub> Mo					0.47(1)		TDPAD	1979LeZL
	0	Stable	5/2 <sup>+</sup>	−0.9142(1)		<sup>92</sup> <sub>42</sub> Mo 2760	TDPAD	1975Fa04
					−0.022(1)	<sup>97</sup> <sub>42</sub> Mo	N	1985Ra09
					−0.015(4)	<sup>97</sup> <sub>42</sub> Mo	AB	1951Pr02
	204	0.75 ns	3/2 <sup>+</sup>	−0.404(12) −0.378(15)			ABLDF	1989Ra17
<sup>96</sup> <sub>42</sub> Mo	778	3.7 ps	2 <sup>+</sup>	+0.79(6)			IPAC	1978Du24
					−0.20(8) or +0.04(8)		IPAC	1984Al11
<sup>97</sup> <sub>42</sub> Mo	0	Stable	5/2 <sup>+</sup>	−0.9335(1)		<sup>14</sup> <sub>7</sub> N	TF	1976Jo03
					+0.255(13) +0.17(4)		CER	2001Ma17
					0.27(10) a		CER	1976Pa13
							N	1951Pr02
							AB, R	1989Ra17
<sup>98</sup> <sub>42</sub> Mo	787	3.5 ps	2 <sup>+</sup>	+0.97(7) +0.7(4)			ABLDF	1978Du24
					−0.26(9)		Mu-X	1980Sc01
<sup>99</sup> <sub>42</sub> Mo	0	65.9 h	1/2 <sup>+</sup>	0.375(3)		<sup>95</sup> <sub>42</sub> Mo	TF	2001Ma17
	98	17 $\mu$ s	5/2 <sup>+</sup>	−0.775(5)			IMPAC	1969He11
<sup>100</sup> <sub>42</sub> Mo	536	10.3 ps	2 <sup>+</sup>	+0.94(7) +0.7(4)			CER	1976Pa13
					−0.42(9) or −0.10(9)		CER	1977Na06
<sup>102</sup> <sub>42</sub> Mo	297	0.11 ns	2 <sup>+</sup>	0.84(14) +0.8(4)			IPAC	1985Me13
					−0.39(8) or −0.13(8)		IPAC	2004Sm04
<sup>104</sup> <sub>42</sub> Mo	192	0.9 ns	2 <sup>+</sup>	+0.54(4) +0.50(4)			IPAC	2004Sm04
				0.4(2)			IPAC	2002Pa14
<sup>106</sup> <sub>42</sub> Mo	172	1.25 ns	2 <sup>+</sup>	+0.42(4)			IPAC	1985Me13
	66	245 ns	Unknown	$g = -0.92(3)$			IPAC	2004Sm04
<sup>107</sup> <sub>42</sub> Mo	193	0.50 ns	2 <sup>+</sup>	+1.0(6)			IPAC	2004Sm04
	2002	3.2 ns	11 <sup>−</sup>	+8.9(3)			TDPAD	1996Tu03
<sup>92</sup> <sub>43</sub> Tc	0	2.75 h	9/2 <sup>+</sup>	6.32(6) 6.26(10)			NMR/ON	1995Hi06
				+10.46(5)			NMR/ON	1981Ha16
<sup>94</sup> <sub>43</sub> Tc	2186	10.1 $\mu$ s	17/2 <sup>−</sup>	5.12(5)			TDPAD	1977Ha49
	0	293 m	7 <sup>+</sup>	5.08(8) 5.0(3)			NMR/ON	1995Hi06
<sup>95</sup> <sub>43</sub> Tc	0	20.0 h	9/2 <sup>+</sup>	5.94(6) 5.89(10)			NMR/ON	1981Ha16
				5.82(12)			NO/S	1977Be19
<sup>96</sup> <sub>43</sub> Tc	0	4.28 d	7 <sup>+</sup>	5.09(5) +5.04(8)			NMR/ON	1995Hi06
				5.4(2)			NMR/ON	1981Ha16
<sup>99</sup> <sub>43</sub> Tc	120	26 ns	(2) <sup>−</sup>	−0.47(2)			NMR/ON	1975Sa18
	0	2.1 $\times 10^5$ y	9/2 <sup>+</sup>	+5.6847(4)		<sup>2</sup> <sub>1</sub> H	TDPAD	1977BeWG
					−0.129(6)		N	1952Wa02
	141	0.205 ns	7/2 <sup>+</sup>	+4.48(15) 3.6(9)			AB	1989Ra17
				+4.4(9)		<sup>99</sup> <sub>43</sub> Tc	IPAC	1993Al23
	181	3.44 ns	5/2 <sup>+</sup>	3.48(4) +3.62(5)			ME	1973Sh21
<sup>108</sup> <sub>43</sub> Tc	>153	100 ns		+3.29(6)			IPAC	1969In07
	2082	2.4 $\mu$ s	21/2 <sup>+</sup>	$g = +0.50(4)$ +8.97(2)			NMR/ON	1995Hi06
<sup>93</sup> <sub>44</sub> Ru					(+ )0.04(1)		IPAC	1993Al23
	2279	35 ns	17/2 <sup>−</sup>	+4.4(2)			TDPAC	1971Wi08
							TDPAD	1976ChZD
							TDPAD	1983Gr33
							TDPAD	1991Ha04
							TDPAD	1983Gr33

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Table 1 (continued)

Nucleus	$E$ (level)	$\tau_{1/2}$	$I^\pi$	$\mu$ (nm) <sup>*</sup>	$Q$ (b)	Ref. Std.	Method	Reference
<sup>94</sup> <sub>44</sub> Ru	2498	65 ns	6 <sup>+</sup>	+8.12(5)			TDPAD	1977Ha49
				+8.10(7)			TDPAD	1979LeZK
	2643	68 $\mu$ s	8 <sup>+</sup>	+11.10(4)			TDPAD	1977Ha49
	4489	1.10 ns	11 <sup>−</sup>	14.1(1.7)			IMPAD	1999Ju04
	4716	34.3 ps	12 <sup>+</sup>	12.4(1.7)			IMPAD	1999Ju04
	0	1.64 h	5/2 <sup>+</sup>	0.861(7)			NMR/ON	1991Hi17
	2285	3 ns	17/2 <sup>+</sup>	+6.98(14)			TDPAC	1976Le30
<sup>95</sup> <sub>44</sub> Ru	2540	10 ns	21/2 <sup>+</sup>	+9.17(7)			TDPAD	1988Gr34
	3908	36 ps	25/2 <sup>−</sup>	11(4)			IMPAD	1999Ju04
	6211	9.5 ps	29/2 <sup>+</sup>	9(5)			IMPAD	1999Ju04
	7624	21 ps	35/2 <sup>+</sup>	7(2)			IMPAD	1999Ju04
	833	2.7 ps	2 <sup>+</sup>		−0.13(9)		CER	1980La01
					−0.1(2)		CER	1977Ma41
					−0.2(3)		CERP	1978Fa08
<sup>97</sup> <sub>44</sub> Ru	0	2.88 d	5/2 <sup>+</sup>	(−)0.787(8)		<sup>101</sup> <sub>44</sub> Ru	NMR/ON	1985Ed06
								1980Le09
				0.73(5)		<sup>101</sup> <sub>44</sub> Ru	NO/S	1981Lu04
<sup>98</sup> <sub>44</sub> Ru	2739	7.8 ns	21/2 <sup>+</sup>	+9.2(8)			TDPAD	1982Di18
	653	5.9 ps	2 <sup>+</sup>	+0.8(6)			IMPAC	1974Hu01
					−0.20(9) or −0.01(9)		CER	1980La01
<sup>99</sup> <sub>44</sub> Ru					−0.03(14)	<sup>102</sup> <sub>44</sub> Ru 475	CER	1977Ma41
	0	Stable	5/2 <sup>+</sup>	−0.641(5)		<sup>101</sup> <sub>44</sub> Ru	AB/D	1977Bu04
				$g(^{99}_{44}\text{Ru})/g(^{101}_{44}\text{Ru})$			N	1982Br28
				= 0.8922344(4)	+0.079(4)	<sup>101</sup> <sub>44</sub> Ru	AB, R	1977Bu04
	90	20.5 ns	3/2 <sup>+</sup>	−0.284(6)			TDPAC	1989Ra17
<sup>100</sup> <sub>44</sub> Ru				−0.292(3)		<sup>99</sup> <sub>44</sub> Ru	ME	1965Ma27
					+0.231(12)	<sup>99</sup> <sub>44</sub> Ru	ME	1989Ra99
						<sup>99</sup> <sub>44</sub> Ru	ME	1976Ki02
								1974Gi12
	540	12 ps	2 <sup>+</sup>	+1.02(13)			IPAC	1966Au06
<sup>101</sup> <sub>44</sub> Ru					−0.54(7) or −0.33(7)		CER	1998Hi01
					−0.43(7) or −0.20(7)		CER	1980La01
					−0.54(7) or −0.33(7)		CER	1980HiZV
					−0.40(12)		CERP	1978Fa08
					−0.13(7)	<sup>102</sup> <sub>44</sub> Ru 475	CER	1977Ma41
<sup>102</sup> <sub>44</sub> Ru	0	Stable	5/2 <sup>+</sup>	−0.719(6)			AB/D	1977Bu04
				−0.716(6)		<sup>99</sup> <sub>44</sub> Ru	N	1974Mu09
					+0.46(2)		AB, R	1977Bu04
	127	0.65 ns	3/2 <sup>+</sup>	−0.210(5)		<sup>99</sup> <sub>44</sub> Ru 90	TDPAC	1986Sc15
				−0.236(12)			IPAC	1984Al11
<sup>103</sup> <sub>44</sub> Ru	475	18 ps	2 <sup>+</sup>	+0.74(6)			IPAC	1972Jo06
					−0.64(5) or −0.33(4)		CER	1998Hi01
					−0.57(7) or −0.35(7)		CER	1980La01
					−0.68(8)		CER	1979Bo28
	0	39.4 d	3/2 <sup>+</sup>	0.206(3)			NMR/ON	1990Hi02
<sup>104</sup> <sub>44</sub> Ru				0.200(7)			NMR/ON	1983Kr01
				0.19(2)		<sup>101</sup> <sub>44</sub> Ru	NO/S	1981Mu18
				(−)0.23(6)		<sup>101</sup> <sub>44</sub> Ru	NO/S	1981Ha11
					(+)0.62(2)	<sup>99</sup> <sub>44</sub> Ru 90	NO/S	1986Gr26
								1983Ko49
<sup>105</sup> <sub>44</sub> Ru	358	58 ps	2 <sup>+</sup>	+0.82(10)			IMPAC, R	1974Hu01
					−0.62(8) or −0.05(7)		CER	1998Hi01
					−0.70(8) or −0.35(8)		CER	1980La01
					−0.8(2)		CERP	1978Fa08
					−0.66(5)	<sup>102</sup> <sub>44</sub> Ru 475	CER	1977Ma41
<sup>106</sup> <sub>44</sub> Ru	0	4.44 h	3/2 <sup>+</sup>	(−)0.32(+8/−20)		<sup>101</sup> <sub>44</sub> Ru	NO/S	1981Ha11
	270	Est 0.20 ns	2 <sup>+</sup>	+0.6(2)			IPAC	2004Sm04
	242	0.30 ns	2 <sup>+</sup>	+0.46(8)			IPAC	2004Sm04
	>95	780 ns	Unknown	$g = -0.22(1)$			TDPAD	1976ChZD
	241	0.30 ns	2 <sup>+</sup>	+0.88(14)			IPAC	2004Sm04
<sup>112</sup> <sub>44</sub> Ru	237	0.32 ns	2 <sup>+</sup>	+0.9(2)			IPAC	2004Sm04
<sup>95</sup> <sub>45</sub> Rh	2236	19 ns	17/2 <sup>−</sup>	+10.9(3)			TDPAD	1983Gr33

Table 1 (continued)

Nucleus	$E$ (level)	$\tau_{1/2}$	$I^\pi$	$\mu$ (nm) <sup>*</sup>	$Q$ (b)	Ref. Std.	Method	Reference
<sup>99</sup> <sub>45</sub> Rh	65	4.7 h	9/2 <sup>+</sup>	5.62(6) 5.668(12) 5.666(14)		<sup>100</sup> <sub>45</sub> Rh 75 <sup>100</sup> <sub>45</sub> Rh 75	NMR/ON, R NMR/ON NMR/ON	1995Se20 1985Ed06 1986Ni02
<sup>100</sup> <sub>45</sub> Rh	75 112 + $x$	215 ns 140 ns	2 <sup>+</sup> 7 <sup>+</sup>	+4.324(8) +4.69(14) +4.8(4)			TDPAC TDPAD TDPAD	1966Ma54 1990Bi03 1986RaZU
<sup>101</sup> <sub>45</sub> Rh	157	4.34 d	9/2 <sup>+</sup>	5.43(6) +5.475(12)			NMR/ON, R NMR/ON	1995Se20 1985Ed06 1973Ka28
<sup>102</sup> <sub>45</sub> Rh	0 141	206 d 2.9 y	2 <sup>-</sup> 6 <sup>+</sup>	5.472(14) 0.5(4) 4.01(4) 4.040(9) 4.044(12)			NMR/ON NO/S NMR/ON, R NMR/ON NMR/ON	1986Ni02 1975Sc09 1995Se20 1989Hi12 1986Ni02
<sup>103</sup> <sub>45</sub> Rh	0 40	Stable 56.1 m	1/2 <sup>-</sup> 7/2 <sup>+</sup>	-0.8840(2) 4.50(5) 4.540(11)		<sup>2</sup> <sub>1</sub> H <sup>100</sup> <sub>45</sub> Rh 75	N NMR/ON, R NMR/ON	1955So10 1995Se20 1985Ed06 1977Ke10
	93 295	1.06 ns 6.7 ps	9/2 <sup>+</sup> 3/2 <sup>-</sup>	+4.9(8) +0.81(8) +0.69(12)	-0.3(2)		IPAC TF TF CERP	1973Ba52 1989La14 1988Be45 1976Ge19
	357	73 ps	5/2 <sup>-</sup>	+1.08(8) +0.9(2) +1.09(5)	-0.4(2)		TF TF CEAD CERP	1989La14 1988Be45 1972Sz03 1976Ge19
	848 920	1.9 ps 5.6 ps	7/2 <sup>-</sup> 9/2 <sup>-</sup>	+2.0(6) +2.8(5)			TF TF	1989La14 1989La14
<sup>104</sup> <sub>45</sub> Rh	215.5 + $x$	47 ns	6 <sup>-</sup>	+2.00(6)			TDPAD	1990Bi03
<sup>105</sup> <sub>45</sub> Rh	0	35.4 h	7/2 <sup>+</sup>	4.41(5) 4.452(10)		<sup>100</sup> <sub>45</sub> Rh 75	NMR/ON, R NMR/ON	1995Se20 1985Ed06 1981Ha19
<sup>106</sup> <sub>45</sub> Rh	0	29.8 s	1 <sup>+</sup>	4.36(12) 2.575(7) 3.09(9) Sign positive		<sup>100</sup> <sub>45</sub> Rh 75 <sup>100</sup> <sub>45</sub> Rh 75	NO/S NMR/ON NO/S $\beta$ -NO/S	1977Wi10 1990Oh01 1977Ru08 1992Ma54
<sup>96</sup> <sub>46</sub> Pd	2532 7039	2.22 $\mu$ s 35 ns	8 <sup>+</sup> (15 <sup>+</sup> )	+10.97(6) (+ )12.5(6)		<sup>96</sup> <sub>46</sub> Pd 2532	TDPAD	1983Gr01
<sup>101</sup> <sub>46</sub> Pd	0	8.5 h	5/2 <sup>+</sup>	(- )0.66(2)		<sup>106</sup> <sub>46</sub> Pd	TDPAD	1989Al05
<sup>102</sup> <sub>46</sub> Pd	556	11.3 ps	2 <sup>+</sup>	+0.82(8) +0.78(10)		<sup>106</sup> <sub>46</sub> Pd 512 <sup>106</sup> <sub>46</sub> Pd 512	NMR/ON TF TF	1986Ni02 1980Br01 1985ThZX
					-0.20(15) -0.2(2)		CERP CER TDPAD	1977Fa11 1977La16 1981KaZE
<sup>103</sup> <sub>46</sub> Pd	785	25 ns	11/2 <sup>-</sup>	-1.05(6)		<sup>106</sup> <sub>46</sub> Pd 512	TF	1980Br01
<sup>104</sup> <sub>46</sub> Pd	556	9.7 ps	2 <sup>+</sup>	+0.92(8) +0.76(8) 0.80(10)		<sup>106</sup> <sub>46</sub> Pd 512 <sup>106</sup> <sub>46</sub> Pd 512 <sup>106</sup> <sub>46</sub> Pd 512	TF RIGV CERP	1985ThZX 1979LaZL 1977Fa11
<sup>105</sup> <sub>46</sub> Pd	0	Stable	5/2 <sup>+</sup>	-0.642(3)	-0.46(11) 0.660(11) a +0.65(3)		N Mu-X AB, R	1964Se13 1978Vu01 1989Ra17
	280 319 645	67 ps 38 ps 126 ps	3/2 <sup>+</sup> 5/2 <sup>+</sup> 7/2 <sup>-</sup>	-0.074(13) +1.0(2) -1.49(9)		<sup>105</sup> <sub>46</sub> Pd 645 <sup>105</sup> <sub>46</sub> Pd 645	IPAC IPAC IPAC	1981Al19 1981Al19 1981Al19
<sup>106</sup> <sub>46</sub> Pd	512	12 ps	2 <sup>+</sup>	+0.80(4)	-0.56(8) or -0.41(8) -0.51(7)		IPAC, R CER, R ES IPAC	1980Br01 1972Lu08 1973Ho05 1970Si20 1968Bo15 1968We16
<sup>108</sup> <sub>46</sub> Pd	434	23 ps	2 <sup>+</sup>	+0.72(6) +0.76(6) +0.64(6)		<sup>106</sup> <sub>46</sub> Pd 512 <sup>106</sup> <sub>46</sub> Pd 512	TF IMPAC, R TF	1980Br01 1974Hu01 1985ThZX

(continued on next page)

Table 1 (continued)

Nucleus	$E$ (level)	$\tau_{1/2}$	$I^\pi$	$\mu$ (nm) <sup>*</sup>	$Q$ (b)	Ref. Std.	Method	Reference
				0.84(10)		<sup>106</sup> Pd 512	RIGV	1979LaZL
					−0.58(4)		ES	1978Ar07
					−0.48(5)	<sup>110</sup> Pd 374	CER	1977Ma41
					−0.51(6) or −0.30(6)		CER	1972Lu08
					−0.7(2)		CERP	1976Ha21
					−0.7(3)		ES, R	1981Ko06
<sup>110</sup> Pd	374	46 ps	2 <sup>+</sup>	+0.62(6)		<sup>106</sup> Pd 512	TF	1980Br01
				+0.62(6)			IMPAC, R	1974Hu01
				+0.70(6)		<sup>106</sup> Pd 512	TF	1985ThZX
				0.74(6)		<sup>106</sup> Pd 512	RIGV	1979LaZL
					−0.47(3)		ES	1976Li19
					−0.55(8) or −0.35(8)		CER, R	1972Lu08
<sup>114</sup> Pd	333	0.20 ps	2 <sup>+</sup>	+0.18(10)			IPAC	2004Sm04
<sup>116</sup> Pd	341	106 ps	2 <sup>+</sup>	+0.4(2)			IPAC	2004Sm04
<sup>101</sup> Ag	0	11.4 m	9/2 <sup>+</sup>	5.7(4)		<sup>110</sup> Ag 118	NO/S	1983Va09
<sup>102</sup> Ag	0	13 m	5 <sup>+</sup>	4.6(7)		<sup>110</sup> Ag 118	NO/S	1985Va06
								1983Va09
	9	7.7 m	2 <sup>+</sup>	4.1(3)		<sup>107</sup> Ag	AB	1974Gr10
	181	3.5 ns	7 <sup>+</sup>	4.6(3)			IPAD	1989VoZR
<sup>103</sup> Ag	0	1.10 h	7/2 <sup>+</sup>	+4.47(5)			AB/D	1970Wa35
<sup>104</sup> Ag	0	69 m	5 <sup>+</sup>	3.917(8)		<sup>110</sup> Ag 118	NMR/ON	1986Va27
<sup>104</sup> Ag	7	33 m	2 <sup>+</sup>	+3.7(2)		<sup>107</sup> Ag	AB	1961Am02
				4.1(3)		<sup>110</sup> Ag 118	NO/S	1989Ra99
				4.8(3)			IPAD	1989VoZR
<sup>105</sup> Ag	212	1.4 ns	7 <sup>+</sup>	4.8(3)		<sup>107</sup> Ag	AB	1963Ew02
<sup>107</sup> Ag	0	41.3 d	1/2 <sup>−</sup>	0.1014(10)			CFBLS	1988DiZU
	25	7.2 m	7/2 <sup>+</sup>	+4.414(13)			TDPAD	1980Le05
	1734	6.0 ns	15/2 <sup>+</sup>	+3.73(14)			TDPAD	1985Ke09
				+3.8(2)			TDPAD	1979Ka05
				+4.4(5)				
<sup>106</sup> Ag	0	24 m	1 <sup>+</sup>	+2.9(2)		<sup>107</sup> Ag	AB	1974Gr10
	90	8.5 d	6 <sup>+</sup>	(+3.705(4)		<sup>110</sup> Ag 118	BFNMR/ON	2001Oh03
				(+3.709(4)		<sup>110</sup> Ag 118	NMR/ON	1984Ed02
				(+3.82(8)		<sup>110</sup> Ag 118	NO/S	1984Be53
					+1.11(11) st	<sup>110</sup> Ag 118	NO/S	1984Be53
<sup>107</sup> Ag	0	Stable	1/2 <sup>−</sup>	−0.11357(2)			AB/D	1973Bu24
				−0.11367965(15)		<sup>2</sup> H	N	1974Sa25
	93	44.3 s	7/2 <sup>+</sup>	(+4.398(5)		<sup>109</sup> Ag 88	NMR/ON	1985Ed01
					0.98(11) st	<sup>110</sup> Ag 118	LMR	1986Be01
	325	5.0 ps	3/2 <sup>−</sup>	+0.9(2)			TF	1986Ba14
				+0.94(14)		<sup>108</sup> Pd 434	TF	1984Wo08
				+1.05(14)		<sup>106</sup> Pd 512	TF	1984Ba72
	423	40.2 ps	5/2 <sup>−</sup>	+1.0(2)			TF	1986Ba14
				+0.93(15)		<sup>108</sup> Pd 434	TF	1984Wo08
				+1.13(15)		<sup>106</sup> Pd 512	TF	1984Ba72
<sup>108</sup> Ag	0	2.4 m	1 <sup>+</sup>	2.6884(7)		<sup>8</sup> Li	β-NMR	1976Wi03
	110	418 y	6 <sup>+</sup>	3.58(2)		<sup>109</sup> Ag 88	O	1975Fi07
					+1.32(7) st		O, R	1984Be53
	215	46 ns	3 <sup>+</sup>	+3.888(15)		<sup>19</sup> F 197	TDPAD, R	1974Be47
<sup>109</sup> Ag	0	Stable	1/2 <sup>−</sup>	0.13056(2)		<sup>107</sup> Ag	N	1954So05
				−0.1306906(2)		<sup>2</sup> H	N	1974Sa25
	88	39.8 s	7/2 <sup>+</sup>	+4.400(6)		<sup>110</sup> Ag 118	NMR/ON	1985Ed01
					(+1.02(12)	<sup>110</sup> Ag 118	LMR, R	1971St09
								1986Be01
								1984Be53
	311	5.9 ps	3/2 <sup>−</sup>	+0.99(15)			TF	1986Ba14
				+1.2(2)		<sup>108</sup> Pd 434	TF	1984Wo08
				+1.2(2)		<sup>106</sup> Pd 512	TF	1984Ba72
					−0.7(3)		CER	1972Th16
	415	35 ps	5/2 <sup>−</sup>	+0.73(15)			TF	1986Ba14
				+0.90(13)		<sup>108</sup> Pd 434	TF	1984Wo08
				+0.90(15)		<sup>106</sup> Pd 512	TF	1984Ba72
					−0.3(3)		CER	1972Th16
<sup>110</sup> Ag	0	24.4 s	1 <sup>+</sup>	2.7271(8)		<sup>108</sup> Ag	NMR/ON, AB	1976Wi03
					0.24(12)		QIR	1981Do17

Table 1 (continued)

Nucleus	$E$ (level)	$\tau_{1/2}$	$I^\pi$	$\mu$ (nm) <sup>*</sup>	$Q$ (b)	Ref. Std.	Method	Reference
<sup>111</sup> <sub>47</sub> Ag	118	252 d	6 <sup>+</sup>	3.589(4) +3.607(4)	+1.44(10) st	<sup>19</sup> F 197	BFNMR/ON	1992Hu09
							AB/D	1967Sc04
							O, R	1984Be53
	119	37 ns	3 <sup>+</sup>	+3.77(3)			TDPAD	1974Be47
	0	7.45 d	1/2 <sup>−</sup>	−0.146(2)		<sup>109</sup> <sub>47</sub> Ag	AB	1956Wo99
	0	3.14 h	2 <sup>(−)</sup>	0.0547(5)		<sup>109</sup> <sub>47</sub> Ag	AB	1964Ch06
	0	5.37 h	1/2 <sup>−</sup>	0.159(2)		<sup>109</sup> <sub>47</sub> Ag	AB	1964Ch06
	2548	73 ns	8 <sup>+</sup>	9.9(5)			TDPAD	1992Al17
	2718	56 ns	8 <sup>+</sup>	10.3(2)			TDPAD	1992Al17
					0.87(10)		TDPAD	1992Al17
<sup>103</sup> <sub>48</sub> Cd	0	7.3 m	5/2 <sup>+</sup>	−0.81(3)		<sup>109</sup> <sub>48</sub> Cd	CLS	1987Bu01
<sup>105</sup> <sub>48</sub> Cd	0	56 m	5/2 <sup>+</sup>	−0.7393(2)	−0.8(7)	<sup>109</sup> <sub>48</sub> Cd	CLS	1987Bu01
					+0.43(4)	<sup>109</sup> <sub>48</sub> Cd	OD	1969La06
						<sup>109</sup> <sub>48</sub> Cd	OD	1969La06
<sup>106</sup> <sub>48</sub> Cd	2517	4.5 μs	21/2 <sup>+</sup>	+9.17(6)			SOPAD	1978Sp09
					(+)1.17(12)	<sup>109</sup> <sub>48</sub> Cd 463	TDPAD	1978Sp09
	633	7.3 ps	2 <sup>+</sup>	+0.8(2)		<sup>110</sup> <sub>48</sub> Cd 658	TF	1980Br01
					−0.28(8)		CER	1976Es02
	4660	62 ns	12 <sup>+</sup>	+8.9(2)			TDPAD, R	1986Vo14
<sup>107</sup> <sub>48</sub> Cd	0	6.50 h	5/2 <sup>+</sup>	−0.6150554(11)		<sup>111</sup> <sub>48</sub> Cd	OP/RD, N, OD	1972Sp09
					+0.68(7)	<sup>109</sup> <sub>48</sub> Cd	OD, R	1963By02
						<sup>19</sup> F 197	OD, R	1969La06
	846	70 ns	11/2 <sup>−</sup>	−1.041(11) −1.11(2)			TDPAD	1974Be17
							TDPAD	1976Le13
					(−)0.94(10)	<sup>109</sup> <sub>48</sub> Cd 463	TDPAD	1978Sp09
	2679	56 ns	21/2 <sup>+</sup>	+9.10(10)			TDPAD	1974Ha48
					+1.21(13)	<sup>109</sup> <sub>48</sub> Cd 463	TDPAD	1978Sp09
	633	6.8 ps	2 <sup>+</sup>	+0.7(2)		<sup>110</sup> <sub>48</sub> Cd 658	TF	1980Br01
					−0.45(8)		CER	1976Es02
<sup>109</sup> <sub>48</sub> Cd	0	453 d	5/2 <sup>+</sup>	−0.8278461(15)		<sup>111</sup> <sub>48</sub> Cd	OP/RD, N, OD	1972Sp09
					+0.69(7)		OD, R	1963By02
							SOP/RDAD	1969La06
	463	10.9 μs	11/2 <sup>−</sup>	−1.096(2)			SOP/RDAD	1989Ra99
					−0.92(9)	<sup>111,3,5</sup> <sub>48</sub> Cd 11/2 <sup>−</sup> states	TDPAD	1978Sp09
	658	5.0 ps	2 <sup>+</sup>	+0.57(11) +0.56(10) 0.62(14)		<sup>111</sup> <sub>48</sub> Cd 245	IPAC, R	1980Br01
						<sup>106</sup> <sub>46</sub> Pd 512	IPAC	1978Wa07
					−0.40(4)		RIGV	1979LaZL
					−0.39(6)	<sup>114</sup> <sub>48</sub> Cd 558	ES	1977Gl13
					−0.36(8)		CER	1977Ma41
<sup>111</sup> <sub>48</sub> Cd	3611	550 ps	10 <sup>+</sup>	−0.9(3)			CER	1976Es02
	0	Stable	1/2 <sup>+</sup>	−0.5948861(8)		<sup>1</sup> H	IMPAD	1995Re15
							OP/RD, N	1972Sp09
								1950Pr51
	245	84 ns	5/2 <sup>+</sup>	0.595543(2) −0.766(3)		<sup>2</sup> H	N	
					+0.77(12) st	<sup>117</sup> <sub>49</sub> In 660	TDPAC	1974Be51
							TDPAC	1973Ra02
					+0.80(10)	<sup>115</sup> <sub>48</sub> Cd 173		1976Ra09
					+0.83(13)	<sup>111</sup> <sub>48</sub> Cd 396	TDPAD	1983Er01
					(+)0.74(8)	<sup>109</sup> <sub>48</sub> Cd 463	TDPAD	1980He02
<sup>112</sup> <sub>48</sub> Cd	342	27 ps	3/2 <sup>+</sup>	0.0(12)		<sup>110</sup> <sub>48</sub> Cd 658	TDPAD	1978Sp09
	396	48.6 m	11/2 <sup>−</sup>	−1.1051(4)		<sup>109</sup> <sub>48</sub> Cd	TF	1988Be45
					−0.85(9)	<sup>109</sup> <sub>48</sub> Cd	OD	1969La06
						<sup>109</sup> <sub>48</sub> Cd	OD	1969La06
	620	10 ps	5/2 <sup>+</sup>	+0.28(12)		<sup>110</sup> <sub>48</sub> Cd 658	TF	1988Be45
	617	6.2 ps	2 <sup>+</sup>	+0.6(2) 0.72(12)		<sup>110</sup> <sub>48</sub> Cd 658	TF	1980Br01
						<sup>106</sup> <sub>46</sub> Pd 512	RIGV	1979LaZL
					−0.37(4)		ES	1977Gl13
					−0.39(8)	<sup>114</sup> <sub>48</sub> Cd 558	CER	1977Ma41
					−0.39(11)		CER	1976Es02
<sup>113</sup> <sub>48</sub> Cd	0	9 × 10 <sup>15</sup> y	1/2 <sup>+</sup>	−0.6223009(9)		<sup>111</sup> <sub>48</sub> Cd	OP/RD, N	1972Sp09
								1950Pr51
	264	14 y	11/2 <sup>−</sup>	−1.087784(2)		<sup>111</sup> <sub>48</sub> Cd	OP/RD, N	1969Ch07
					−0.71(7)	<sup>109</sup> <sub>48</sub> Cd	OD, R	1969La06

(continued on next page)

Table 1 (continued)

Nucleus	$E$ (level)	$\tau_{1/2}$	$I^\pi$	$\mu$ (nm) <sup>*</sup>	$Q$ (b)	Ref. Std.	Method	Reference
<sup>114</sup> <sub>48</sub> Cd	298	32 ps	3/2 <sup>+</sup>	−0.4(8)			TF	1988Be45
	584	9 ps	5/2 <sup>+</sup>	+0.15(12)			TF	1988Be45
	558	9.0 ps	2 <sup>+</sup>	+0.58(14)		<sup>110</sup> <sub>48</sub> Cd 658	TF	1980Br01
				0.60(8)		<sup>106</sup> <sub>46</sub> Pd 512	RIGV	1979LaZL
					−0.35(5)		CER	1972La25
<sup>115</sup> <sub>48</sub> Cd					−0.348(12)		ES	1976Es02
					−0.38(4)		ES	1981Ko06
					−0.34(3)		ES	1977Gl13
	0	53.4 h	1/2 <sup>+</sup>	−0.6484259(12)		<sup>111</sup> <sub>48</sub> Cd	OP/RD, N	1976Li19
	173	44.8 d	11/2 <sup>−</sup>	−1.0410343(15)		<sup>111</sup> <sub>48</sub> Cd	OP/RD, N	1969Ch07
<sup>116</sup> <sub>48</sub> Cd					−0.54(5)	<sup>113</sup> <sub>48</sub> Cd 264	OL	1973Ge12
	514	15 ps	2 <sup>+</sup>	+0.60(14)		<sup>110</sup> <sub>48</sub> Cd 658	TF	1980Br01
					−0.42(4)		ES	1977Gl13
					−0.42(8)		CER	1976Es02
					−0.64(12) or −0.46(12)		CER	1977Na06
<sup>104</sup> <sub>49</sub> In	0	1.7 m	5 <sup>+</sup>	+4.44(2)		<sup>115</sup> <sub>49</sub> In	CFBLS	1987Eb02
<sup>105</sup> <sub>49</sub> In					+0.66(11) st	<sup>115</sup> <sub>49</sub> In	CFBLS	1987Eb02
	0	5.07 m	9/2 <sup>+</sup>	+5.675(5)		<sup>115</sup> <sub>49</sub> In	CFBLS	1987Eb02
				4.8(4)			NO/S	1982Va21
<sup>106</sup> <sub>49</sub> In					+0.83(5) st	<sup>115</sup> <sub>49</sub> In	CFBLS	1987Eb02
	0	6.2 m	7 <sup>+</sup>	+4.916(7)		<sup>115</sup> <sub>49</sub> In	CFBLS	1987Eb02
				4.921(13)			NMR/ON	1986Va27
<sup>107</sup> <sub>49</sub> In					+0.97(6) st	<sup>115</sup> <sub>49</sub> In	CFBLS	1982Va21
	0	32.4 m	9/2 <sup>+</sup>	+5.585(8)		<sup>115</sup> <sub>49</sub> In	CFBLS	1987Eb02
				5.6(5)			NO/S	1982Va21
<sup>108</sup> <sub>49</sub> In					+0.81(5) st	<sup>115</sup> <sub>49</sub> In	CFBLS	1987Eb02
	0	58 m	7 <sup>+</sup>	+4.561(3)		<sup>115</sup> <sub>49</sub> In	CFBLS	1987Eb02
				4.557(7)			NMR/ON	1986Va27
<sup>109</sup> <sub>49</sub> In					+1.005(7) st	<sup>115</sup> <sub>49</sub> In	CFBLS	1982Va21
	29	40 m	2 <sup>+</sup>	+4.935(5)		<sup>115</sup> <sub>49</sub> In	CFBLS	1987Eb02
					+0.467(14)	<sup>115</sup> <sub>49</sub> In	CFBLS	1987Eb02
<sup>110</sup> <sub>49</sub> In					+0.84(3) st	<sup>115</sup> <sub>49</sub> In	CFBLS	1987Eb02
	0	4.2 h	9/2 <sup>+</sup>	+5.538(4)		<sup>115</sup> <sub>49</sub> In	CFBLS	1987Eb02
				+5.538(11)			NMR/ON	1981Ha26
<sup>111</sup> <sub>49</sub> In					+0.35(2) st	<sup>113</sup> <sub>49</sub> In	AB	1968CaZX
	0*	69.1 m	2 <sup>+</sup>	+4.365(4)		<sup>115</sup> <sub>49</sub> In	AB, R	1968CaZX
					+1.00(2)	<sup>115</sup> <sub>49</sub> In	CFBLS	1987Eb02
<sup>112</sup> <sub>49</sub> In					+0.80(2)	<sup>115</sup> <sub>49</sub> In	CFBLS	1987Eb02
	0*	4.9 h	7 <sup>+</sup>	+4.713(8)		<sup>115</sup> <sub>49</sub> In	CFBLS	1987Eb02
				4.719(13)			NMR/ON	1981Ha26
<sup>113</sup> <sub>49</sub> In					+0.80(2)	<sup>115</sup> <sub>49</sub> In	CFBLS	1987Eb02
	0	2.83 d	9/2 <sup>+</sup>	+5.503(7)		<sup>115</sup> <sub>49</sub> In	CFBLS	1987Eb02
				5.499(7)			BFNMR/ON	1982Nu01
<sup>114</sup> <sub>49</sub> In					+0.80(2)	<sup>115</sup> <sub>49</sub> In	NMR/ON	1981Ha45
					+0.80(2)	<sup>115</sup> <sub>49</sub> In	NO/S	1980Ha26
					+0.80(2)	<sup>115</sup> <sub>49</sub> In	CFBLS	1987Eb02
<sup>115</sup> <sub>49</sub> In					+0.80(2)	<sup>115</sup> <sub>49</sub> In	CFBLS	1987Eb02
	2717	14.8 ns	21/2 <sup>+</sup>	+5.3(2)		<sup>115</sup> <sub>49</sub> In	TDPAD	1980Le05
				+4.9(2)		<sup>115</sup> <sub>49</sub> In	TDPAD	1981Va15
<sup>116</sup> <sub>49</sub> In					+0.087(5)	<sup>113</sup> <sub>49</sub> In	AB	1968CaZX
	0*	14.4 m	1 <sup>+</sup>	+2.82(3)		<sup>115</sup> <sub>49</sub> In	AB, R	1968CaZX
					+0.714(10)	<sup>115</sup> <sub>49</sub> In	CFBLS	1987Eb02
<sup>117</sup> <sub>49</sub> In					+0.714(10)	<sup>115</sup> <sub>49</sub> In	CFBLS	1987Eb02
	157	20.9 m	4 <sup>+</sup>	+5.227(4)		<sup>115</sup> <sub>49</sub> In	CFBLS	1987Eb02
					1.03(3)	<sup>115</sup> <sub>49</sub> In 660	TDPAD	1976Io04
<sup>118</sup> <sub>49</sub> In					0.095(3)	<sup>115</sup> <sub>49</sub> In 660	TDPAD	1993Io02
	351	0.69 μs	7 <sup>+</sup>	+4.73(4)		<sup>115</sup> <sub>49</sub> In 660	TDPAD	1976Io02
					0.086(3) st	<sup>115</sup> <sub>49</sub> In	TDPAD	1976Io02
<sup>119</sup> <sub>49</sub> In					+0.80(4) st	<sup>115</sup> <sub>49</sub> In	N	1957Ri42
	0	Stable	9/2 <sup>+</sup>	+5.5289(2)		<sup>115</sup> <sub>49</sub> In	AB	1987Eb02
					+0.80(4) st	<sup>115</sup> <sub>49</sub> In	AB	1960Ch08
<sup>120</sup> <sub>49</sub> In					+0.80(4) st	<sup>115</sup> <sub>49</sub> In	AB	1960Ch08
	392	99.5 m	1/2 <sup>−</sup>	−0.21074(2)		<sup>115</sup> <sub>49</sub> In	NMR/ON	1982Nu02
	0	71.9 s	1 <sup>+</sup>	2.817(11)		<sup>115</sup> <sub>49</sub> In	NMR/ON	1987Eb02
<sup>121</sup> <sub>49</sub> In					+0.80(4) st	<sup>115</sup> <sub>49</sub> In	NMR/ON	1987Eb02
	190	49.5 d	5 <sup>+</sup>	+4.653(5)		<sup>115</sup> <sub>49</sub> In	NMR/ON	1979La20
<sup>122</sup> <sub>49</sub> In					+0.80(4) st	<sup>115</sup> <sub>49</sub> In	NMR/ON	1979La20
					+0.80(4) st	<sup>115</sup> <sub>49</sub> In	NMR/ON	1979La20



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Table 1 (continued)

Nucleus	$E$ (level)	$\tau_{1/2}$	$I^\pi$	$\mu$ (nm) <sup>*</sup>	$Q$ (b)	Ref. Std.	Method	Reference
<sup>108</sup> <sub>50</sub> Sn	2365	7.3 ns	6 <sup>+</sup>	−0.24(12)			TFL	1983Ha37
	3561	71 ps	8 <sup>+</sup>	>0.8			TFL	1983Ha37
<sup>109</sup> <sub>50</sub> Sn	0	18.0 m	5/2 <sup>+</sup>	−1.079(6)		<sup>119</sup> <sub>50</sub> Sn	CFBLS	1987Eb01
					+0.31(10)		CFBLS	1987Eb01
<sup>110</sup> <sub>50</sub> Sn	2480	5.6 ns	6 <sup>+</sup>	+0.07(3)			TDPAD	1989Vo17
					0.34(4)		TDPAD	1989Vo17
<sup>111</sup> <sub>50</sub> Sn	3767	1.15 ns	8 <sup>−</sup>	−2.4(12)			TDPAD	1989Vo17
<sup>111</sup> <sub>50</sub> Sn	0	35 m	7/2 <sup>+</sup>	+0.608(4)		<sup>119</sup> <sub>50</sub> Sn	CFBLS	1987Eb01
				+0.617(8)		<sup>115,7,9</sup> <sub>50</sub> Sn	ABLFS	1986An24
					+0.18(9)		CFBLS	1987Eb01
<sup>112</sup> <sub>50</sub> Sn	979	9.2 ns	11/2 <sup>−</sup>	−1.26(11)			TDPAD	1974Br29
<sup>112</sup> <sub>50</sub> Sn	1257	0.35 ps	2 <sup>+</sup>	+0.7(3)			TF	1980Ha19
					−0.03(11)		CER	1975Gr30
	2550	13.7 ns	6 <sup>+</sup>	+0.53(3)			TDPAD	1983Le18
				+0.61(5)				1981Go17
				+0.2(2)				1981Va15
					0.25(2)	<sup>113</sup> <sub>50</sub> Sn 739	TDPAD	1975Vi03
					0.29(7)		TDPAD	1989Ra99
<sup>113</sup> <sub>50</sub> Sn	0	115 d	1/2 <sup>+</sup>	−0.8791(6)		<sup>115,7,9</sup> <sub>50</sub> Sn	ABLFS	1986An24
<sup>113</sup> <sub>50</sub> Sn	739	82 ns	11/2 <sup>−</sup>	−1.30(2)			TDPAD	1981Go17
				−1.29(2)			TDPAD	1974Di18
					0.41(4)	<sup>116</sup> <sub>50</sub> Sn 3548	TDPAD	1975Di02
					0.48(5)	<sup>118</sup> <sub>50</sub> Sn 3108	TDPAD	1976Be59
<sup>114</sup> <sub>50</sub> Sn	1300	0.28 ps	2 <sup>+</sup>	>0			TF	1980Ha19
<sup>114</sup> <sub>50</sub> Sn	3088	765 ns	7 <sup>−</sup>	−0.567(4)			TDPAD	1973IsZQ
					0.32(3)	<sup>116</sup> <sub>50</sub> Sn 3548	TDPAD	1975Di02
					0.36(4)	<sup>118</sup> <sub>50</sub> Sn 3108	TDPAD	1976Be59
<sup>115</sup> <sub>50</sub> Sn	0	Stable	1/2 <sup>+</sup>	−0.91883(7)		<sup>23</sup> <sub>11</sub> Na	N	1950Pr51
<sup>115</sup> <sub>50</sub> Sn	613	3.26 ps	7/2 <sup>+</sup>	+0.683(10)			TDPAD	1975Iv02
					0.26(3)	<sup>118</sup> <sub>50</sub> Sn 3108	TDPAD	1976Be59
	714	159 $\mu$ s	11/2 <sup>−</sup>	−1.378(11)			TDPAD	1975Iv02
				−1.369(4)			NMR/AC	1971Br03
					0.38(6)		QIR	1975Ri03
<sup>116</sup> <sub>50</sub> Sn	1294	0.36 ps	2 <sup>+</sup>	−0.3(2)			TF	1980Ha19
					−0.17(4)		ES	1976Li19
					+0.08(8)		CER	1975Gr30
								1970Ki06
	2366	370 ns	5 <sup>−</sup>	−0.376(3)			TDPAD	1973IsZQ
					0.26(3)	<sup>116</sup> <sub>50</sub> Sn 3548	TDPAD	1975Di02
					0.28(3)	<sup>118</sup> <sub>50</sub> Sn 3108	TDPAD	1976Be59
	3548	904 ns	10 <sup>+</sup>	−2.326(15)			TDPAD	1973IsZQ
					0.50(5)		Est from B(E2)	1975Di02
<sup>117</sup> <sub>50</sub> Sn	0	Stable	1/2 <sup>+</sup>	−1.00104(7)		<sup>23</sup> <sub>11</sub> Na	N	1950Pr51
<sup>117</sup> <sub>50</sub> Sn	159	279 ps	3/2 <sup>+</sup>	+0.66(5)			IPAC	1986Bo31
<sup>117</sup> <sub>50</sub> Sn	315	13.6 d	11/2 <sup>−</sup>	−1.3955(10)		<sup>115,7,9</sup> <sub>50</sub> Sn	ABLFS	1986An24
					−0.42(5)		ABLFS	1986An24
<sup>118</sup> <sub>50</sub> Sn	1230	0.46 ps	2 <sup>+</sup>	+0.04(20)			TF	1980Ha19
					−0.05(14)		CER	1975Gr30
<sup>118</sup> <sub>50</sub> Sn	2321	21.7 ns	5 <sup>−</sup>	−0.30(3)			TDPAC	1964DeZZ
				−0.34(4)			IPAC	1962Bo16
					0.16(3)	<sup>116</sup> <sub>50</sub> Sn 3548	TDPAD	1975Di02
<sup>118</sup> <sub>50</sub> Sn	2575	217 ns	7 <sup>−</sup>	−0.689(4)			TDPAD	1973IsZQ
					0.32(3)	<sup>118</sup> <sub>50</sub> Sn 3108	TDPAD	1976Be59
<sup>118</sup> <sub>50</sub> Sn	3106	2.65 $\mu$ s	10 <sup>+</sup>	−2.447(7)			TDPAD	1973IsZQ
					0.41(4)		Est from B(E2)	1976Be59
<sup>119</sup> <sub>50</sub> Sn	0	Stable	1/2 <sup>+</sup>	−1.04728(7)		<sup>23</sup> <sub>11</sub> Na	N	1950Pr51
<sup>119</sup> <sub>50</sub> Sn	24	17.8 ns	3/2 <sup>+</sup>	+0.633(3)		<sup>119</sup> <sub>50</sub> Sn	ME	1973Cr01
				+0.682(3)			ME	1989Ra99
					0.128(7)		R	1997Sv03
					−0.109(8)		ME	1983Ha50
					0.094(11)	<sup>116</sup> <sub>50</sub> Sn 3548	TDPAD	1975Di02
					−0.065(5)		ME, R	1972Mi02

Table 1 (continued)

Nucleus	$E$ (level)	$\tau_{1/2}$	$I^\pi$	$\mu$ (nm) <sup>*</sup>	$Q$ (b)	Ref. Std.	Method	Reference
<sup>120</sup> <sub>50</sub> Sn	90	293.1 d	11/2 <sup>−</sup>	−1.40(8)	−0.061(3)	<sup>119</sup> <sub>50</sub> Sn 24	ME, R	1987Gr28
					0.21(2)		ME	1972Gu09
	1171	0.64 ps	2 <sup>+</sup>	−0.28(14)	+0.022(10)	<sup>119</sup> <sub>50</sub> Sn 24	ME, R	1975Di02
					−0.05(10)		TF	1980Ha19
<sup>121</sup> <sub>50</sub> Sn	2285	5.53 ns	5 <sup>−</sup>	−0.28(3) −0.37(5)	+0.022(10)	<sup>119</sup> <sub>50</sub> Sn 24	CER	1992Vo09
					−0.05(10)		CER	1975Gr30
	0	27.1 h	3/2 <sup>+</sup>	+0.6978(10)	0.033(4)	<sup>115,7,9</sup> <sub>50</sub> Sn	TDPAC	1964DeZZ
					−0.28 < $Q$ < +0.14		IPAC	1962Bo16
<sup>122</sup> <sub>50</sub> Sn	1140	0.76 ps	2 <sup>+</sup>	−0.1(2)	0.033(4)	<sup>119</sup> <sub>50</sub> Sn 24	TDPAD	1975Di02
					−0.28 < $Q$ < +0.14		TF	1980Ha19
	0	129 d	11/2 <sup>−</sup>	−1.3700(9)	−0.02(2)	<sup>115,7,9</sup> <sub>50</sub> Sn	CER	1975Gr30
					+0.03(4)		ABLFS	1986An24
<sup>123</sup> <sub>50</sub> Sn	1132	0.97 ps	2 <sup>+</sup>	−0.3(2)	−0.14(3)	<sup>119</sup> <sub>50</sub> Sn	ABLFS	1986An24
					−0.14(3)		ABLFS	1986An24
	0	9.62 d	11/2 <sup>−</sup>	−1.348(2) −1.348(6)	−0.28 < $Q$ < +0.14	<sup>115,7,9</sup> <sub>50</sub> Sn	TF	1980Ha19
					−0.28 < $Q$ < +0.14		CER	1975Gr30
<sup>124</sup> <sub>50</sub> Sn	1132	0.97 ps	2 <sup>+</sup>	−0.3(2)	−0.28 < $Q$ < +0.14	<sup>115,7,9</sup> <sub>50</sub> Sn	ABLFS	1986An24
					−0.28 < $Q$ < +0.14		ABLFS	1986An24
	0	9.62 d	11/2 <sup>−</sup>	−1.348(2) −1.348(6)	−0.28 < $Q$ < +0.14	<sup>115,7,9</sup> <sub>50</sub> Sn	TF	1980Ha19
					−0.28 < $Q$ < +0.14		CER	1975Gr30
<sup>125</sup> <sub>50</sub> Sn	28	9.5 m	3/2 <sup>+</sup>	+0.764(3)	0.0(2)	<sup>115,7,9</sup> <sub>50</sub> Sn	ABLFS	1986An24
					0.0(2)		ABLFS	2004Le13
	0	9.62 d	11/2 <sup>−</sup>	−1.348(2) −1.348(6)	+0.1(2)	<sup>115,7,9</sup> <sub>50</sub> Sn	ABLFS	2004Le13
					+0.1(2)		ABLFS	1986An24
<sup>127</sup> <sub>50</sub> Sn	28	9.5 m	3/2 <sup>+</sup>	+0.764(3)	+0.1(2)	<sup>115,7,9</sup> <sub>50</sub> Sn	ABLFS	1986An24
					+0.1(2)		ABLFS	2004Le13
	0	2.1 h	11/2 <sup>−</sup>	−1.329(7)	+0.79(7)	<sup>115,7,9</sup> <sub>50</sub> Sn	ABLFS	2004Le13
					+0.79(7)		ABLFS	2004Le13
<sup>129</sup> <sub>50</sub> Sn	5	4.13 m	3/2 <sup>+</sup>	+0.757(4)	+0.30(13)	<sup>115,7,9</sup> <sub>50</sub> Sn	ABLFS	2004Le13
					+0.30(13)		ABLFS	2004Le13
	0	2.23 m	3/2 <sup>+</sup>	+0.754(6)	+0.60(6)	<sup>115,7,9</sup> <sub>50</sub> Sn	ABLFS	2004Le13
					+0.60(6)		ABLFS	2004Le13
<sup>130</sup> <sub>50</sub> Sn	35	6.9 m	11/2 <sup>−</sup>	−1.297(5)	+0.05(11)	<sup>115,7,9</sup> <sub>50</sub> Sn	ABLFS	2004Le13
					+0.05(11)		ABLFS	2004Le13
	0	2.23 m	3/2 <sup>+</sup>	+0.754(6)	+0.2(2)	<sup>115,7,9</sup> <sub>50</sub> Sn	ABLFS	2004Le13
					+0.2(2)		ABLFS	2004Le13
<sup>131</sup> <sub>50</sub> Sn	1947	1.7 m	7 <sup>−</sup>	−0.381(3)	−0.36(11)	<sup>115,7,9</sup> <sub>50</sub> Sn	ABLFS	2004Le13
					−0.36(11)		ABLFS	2004Le13
	0	56 s	3/2 <sup>+</sup>	+0.747(4)	−0.04(8)	<sup>115,7,9</sup> <sub>50</sub> Sn	ABLFS	2004Le13
					−0.04(8)		ABLFS	2004Le13
<sup>131</sup> <sub>50</sub> Sn	242	58.4 s	11/2 <sup>−</sup>	−1.276(5)	0.00(2)	<sup>115,7,9</sup> <sub>50</sub> Sn	ABLFS	2004Le13
					0.00(2)		ABLFS	2004Le13
	0	56 s	3/2 <sup>+</sup>	+0.747(4)	−0.04(8)	<sup>115,7,9</sup> <sub>50</sub> Sn	ABLFS	2004Le13
					−0.04(8)		ABLFS	2004Le13
<sup>112</sup> <sub>51</sub> Sb	796	536 ns	8 <sup>−</sup>	+2.192(8)	0.71(7) st	<sup>121</sup> <sub>51</sub> Sb	ABLFS	2004Le13
					0.71(7) st		ABLFS	2004Le13
	0	3.49 m	3 <sup>+</sup>	1.72(8)	−0.04(8)	<sup>121</sup> <sub>51</sub> Sb	ABLFS	2004Le13
					−0.04(8)		ABLFS	2004Le13
<sup>114</sup> <sub>51</sub> Sb	496	219 $\mu$ s	8 <sup>−</sup>	+2.265(5)	0.00(2)	<sup>121</sup> <sub>51</sub> Sb	ABLFS	2004Le13
					0.00(2)		ABLFS	2004Le13
	0	3.49 m	3 <sup>+</sup>	1.72(8)	−0.04(8)	<sup>121</sup> <sub>51</sub> Sb	ABLFS	2004Le13
					−0.04(8)		ABLFS	2004Le13
<sup>115</sup> <sub>51</sub> Sb	496	219 $\mu$ s	8 <sup>−</sup>	+2.265(5)	0.00(2)	<sup>121</sup> <sub>51</sub> Sb	ABLFS	2004Le13
					0.00(2)		ABLFS	2004Le13
	0	3.49 m	3 <sup>+</sup>	1.72(8)	−0.04(8)	<sup>121</sup> <sub>51</sub> Sb	ABLFS	2004Le13
					−0.04(8)		ABLFS	2004Le13
<sup>115</sup> <sub>51</sub> Sb	2796	152 ns	19/2 <sup>−</sup>	+2.54(4)	0.66(11) st	<sup>121</sup> <sub>51</sub> Sb	ABLFS	2004Le13
					0.66(11) st		ABLFS	2004Le13
	0	31.8 m	5/2 <sup>+</sup>	+3.46(1)	−0.36(6) st	<sup>121</sup> <sub>51</sub> Sb	ABLFS	2004Le13
					−0.36(6) st		ABLFS	2004Le13
<sup>115</sup> <sub>51</sub> Sb	1300	8.4 ns	11/2 <sup>−</sup>	+5.53(8) +5.8(6) +5.3(6)	−0.36(6) st	<sup>121</sup> <sub>51</sub> Sb	ABLFS	2004Le13
					−0.36(6) st		ABLFS	2004Le13
	2796	152 ns	19/2 <sup>−</sup>	+2.54(4)	0.66(11) st	<sup>121</sup> <sub>51</sub> Sb	ABLFS	2004Le13
					0.66(11) st		ABLFS	2004Le13

(continued on next page)

Table 1 (continued)

Nucleus	$E$ (level)	$\tau_{1/2}$	$I^\pi$	$\mu$ (nm) <sup>*</sup>	$Q$ (b)	Ref. Std.	Method	Reference
				+2.73(4)			TDPAD	1979Fa03
				+2.76(5)			TDPAD	1979Sh03
				+2.68(6)			TDPAD	1979Ko02
					0.52(6) st	$^{121}_{51}\text{Sb}$	TDPAD	1983Se04
					0.49(14) st	$^{121}_{51}\text{Sb}$	TDPAD	1982Ma29
$^{116}_{51}\text{Sb}$	0	16 m	$3^+$	2.715(9)		$^{121}_{51}\text{Sb}$	NMR/ON	1986Gr16
	94	194 ns	$1^+$	+2.47(9)			TDPAD	1993Di06
	383	60.3 m	$8^+$	2.59(22)			NO/S	1993Bo46
	1844	11.9 ns	$7^+$	+4.69(10)			TDPAD	1992Io01
					1.67(39)	$^{112}_{51}\text{Sb}$ 796	TDPAD	1992Io01
$^{117}_{51}\text{Sb}$	0	2.80 h	$5/2^+$	+3.43(6)		$^{121}_{51}\text{Sb}$	AB	1974Ek01
					0(2)	$^{121}_{51}\text{Sb}$	AB, R	1974Ek01
	1323	3.8 ns	$11/2^-$	+5.35(9)			TDPAD, R	1980Le05
				+5.6(4)			TDPAD	1978Ke04
	3131	340 $\mu\text{s}$	$(25/2)^+$	+1.500(9)			NMR/ON, TDPAD	1975Iv02
					0.75(9) st	$^{121}_{51}\text{Sb}$	QIR, R	1982Ma29
	3231	290 ns	$23/2^-$	+5.03(6)			TDPAD	1987Io01
					2.5(3) st	$^{112}_{51}\text{Sb}$ 796	TDPAD	1988Io01
$^{118}_{51}\text{Sb}$	0	3.6 m	$1^+$	2.47(7)		$^{121}_{51}\text{Sb}$	AB	1968Ja05
	51	20.6 $\mu\text{s}$	$(3)^+$	+2.63(5)		$^{115}_{51}\text{Sn}$ 714	TDPAD	1975Pl04
					0.57(14) st	$^{121}_{51}\text{Sb}$	QIR, R	1982Ma29
	212	5.0 h	$8^-$	2.32(4)		$^{122}_{51}\text{Sb}$	NMR/ON	1974Ca06
	270	13.4 ns	$3^-$	-3.76(9)			TDPAD	1985Di07
					0.25(5) st	$^{112}_{51}\text{Sb}$ 796	TDPAD	1985Di07
	927	22.8 ns	$7^+$	+4.76(13)			TDPAD	1985Di07
					1.8(3) st	$^{112}_{51}\text{Sb}$ 796	TDPAD	1988Io01
$^{119}_{51}\text{Sb}$	0	38.0 h	$5/2^+$	+3.45(1)		$^{121}_{51}\text{Sb}$	AB	1968Ja05
					-0.37(6) st	$^{121}_{51}\text{Sb}$	AB	1968Ja05
	2554	128 ns	$19/2^-$	+3.14(6)			TDPAC	1991Io02
					2.1(2)	$^{112}_{51}\text{Sb}$ 796	TDPAC	1991Io02
$^{120}_{51}\text{Sb}$	*0*	15.9 m	$1^+$	2.3(2)		$^{121}_{51}\text{Sb}$	AB	1968Ja05
	*0*	5.76 d	$8^-$	2.34(1)		$^{122}_{51}\text{Sb}$	NMR/ON	1974Ca06
	78	247 ns	$3^+$	+2.584(6)			TDPAD	1976Io03
					0.41(4) st	$^{121}_{51}\text{Sb}$	TDPAD	1982Ma29
$^{121}_{51}\text{Sb}$	0	Stable	$5/2^+$	+3.3634(3)		$^{23}_{11}\text{Na}$	N	1951Pr02
					-0.36(4) st		O	1978Bu24
					-0.45(3) st		AB, R	1976De22
	37	3.5 ns	$7/2^+$	+2.518(7)		$^{121}_{51}\text{Sb}$	ME	1976La09
					-0.48(5) st	$^{121}_{51}\text{Sb}$	ME	1970St13
$^{122}_{51}\text{Sb}$	0	2.68 d	$2^-$	-1.90(2)		$^{121}_{51}\text{Sb}$	NO/D	1958Pi45
					+0.85(11) st	$^{121}_{51}\text{Sb}$	AB	1960Fe08
					+0.9(2)	$^{121}_{51}\text{Sb}$	NO/S	1985He16
	61	1.86 $\mu\text{s}$	$3^+$	+2.983(12)			SOPAD	1973He10
					+0.41(4) st	$^{121}_{51}\text{Sb}$	TDPAD	1982Ma29
	137	530 $\mu\text{s}$	$5^+$	+3.05(10)			TDPAD	1977Co18
$^{123}_{51}\text{Sb}$	0	Stable	$7/2^+$	+2.5498(2)		$^2_1\text{H}$	N	1951Pr02
					-0.49(5) st		O	1978Bu24
$^{124}_{51}\text{Sb}$	0	60.2 d	$3^-$	1.20(2)		$^{122}_{51}\text{Sb}$	NMR/ON	1974Ca06
					+1.9(4) st	$^{121}_{51}\text{Sb}$	NO/S	1985He16
	41	3.2 $\mu\text{s}$	$3^+$	+2.97(3)			TDPAD	1981Io04
	125	86 ns	$6^-$	+0.384(12)			TDPAD	1981Io04
$^{125}_{51}\text{Sb}$	0	2.7 y	$7/2^+$	+2.63(4)		$^{122}_{51}\text{Sb}$	NMR/ON	1974Ca06
$^{126}_{51}\text{Sb}$	0	12.4 d	$(8)^-$	1.28(7)			NO/S	1972Kr15
$^{127}_{51}\text{Sb}$	0	3.84 d	$7/2^+$	2.697(6)		$^{123}_{51}\text{Sb}$	NMR/ON	1996Li01
				2.59(12)			NO/S	1972Kr15
$^{128}_{51}\text{Sb}$	0	9.1 h	$8^-$	1.3(2)			NO/S	1972Kr15
$^{129}_{51}\text{Sb}$	0	4.4 h	$7/2^+$	2.79(2)		$^{123}_{51}\text{Sb}$	NMR/ON	1997St06
								1996Li01
$^{130}_{51}\text{Sb}$	0	6.3 m	$(4^+)$	3.09(1)		$^{123}_{51}\text{Sb}$	NMR/ON	2002Gi99
$^{131}_{51}\text{Sb}$	0	23 m	$7/2^+$	2.89(1)		$^{123}_{51}\text{Sb}$	NMR/ON	1997St06
$^{132}_{51}\text{Sb}$	0	2.8 m	$(4^+)$	3.18(1)		$^{123}_{51}\text{Sb}$	NMR/ON	2002Gi99
$^{133}_{51}\text{Sb}$	0	2.5 m	$7/2^+$	3.00(1)		$^{123}_{51}\text{Sb}$	NMR/ON	1997St06

Table 1 (continued)

Nucleus	$E$ (level)	$\tau_{1/2}$	$I^\pi$	$\mu$ (nm) <sup>*</sup>	$Q$ (b)	Ref. Std.	Method	Reference
<sup>115</sup> <sub>52</sub> Te	280	7.5 $\mu$ s	11/2 <sup>−</sup>	−0.954(5) −1.02(4)			TDPAD	1977MiZL
<sup>117</sup> <sub>52</sub> Te	274	19.1 ns	5/2 <sup>+</sup>	−0.787(12) −0.75(5)			TDPAD	1972Va38
<sup>119</sup> <sub>52</sub> Te	0	16.1 h	1/2 <sup>+</sup>	0.25(5)			TDPAD	1981Io07
	300	4.68 d	11/2 <sup>−</sup>	0.894(6)		<sup>125</sup> <sub>52</sub> Te 36	AB	1981Ha11
	320	2.2 ns	5/2 <sup>+</sup>	−0.9(2)			NMR/ON	1965Ad03
<sup>120</sup> <sub>52</sub> Te	560	9.3 ps	2 <sup>+</sup>	+0.78(14) +0.58(6)			IPAD	1987Ni11
<sup>121</sup> <sub>52</sub> Te	294	154 d	11/2 <sup>−</sup>	0.895(10)		<sup>125</sup> <sub>52</sub> Te 36	TF	1989Ra99
	443	83.5 ns	7/2 <sup>+</sup>	+0.738(10) +0.774(11) +0.63(7)			TF	1985ThZX
<sup>122</sup> <sub>52</sub> Te	564	7.52 ps	2 <sup>+</sup>	+0.66(4) +0.68(4) +0.72(4) +0.66(6) +0.56(10)			TF	1981Sh15
					−0.57(5)		IPAC, R	1988Du10
					−0.50(5)		TF	1985ThZX
<sup>123</sup> <sub>52</sub> Te	0	>1 $\times 10^{15}$ y	1/2 <sup>+</sup>	−0.7369478(8)		<sup>125</sup> <sub>52</sub> Te	TF	1988Du10
	159	0.2 ns	3/2 <sup>+</sup>	0.72(12)			CER	1981Sh15
	247	119.7 d	11/2 <sup>−</sup>	−0.927(8)		<sup>125</sup> <sub>52</sub> Te 36	CER, R	1978Be10
	440	27 ps	3/2 <sup>+</sup>	+0.5(2) +0.51(9)			N	1977Bu29
	489	30.7 ns	7/2 <sup>+</sup>	+0.787(14)				1953We51
	506	18 ps	5/2 <sup>+</sup>	+0.1(2) +0.10(6) +0.56(6) +0.66(6) +0.62(8) +0.52(6)			IPAC	1970Ro13
<sup>124</sup> <sub>52</sub> Te	603	6.25 ps	2 <sup>+</sup>				NMR/ON	1987Ni11
							TF	1988Be45
							IMPAC	1974Ro40
							TDPAD	1981Io05
							TF	1988Be45
							IMPAC	1974Ro40
							IPAC, R	1988Du10
							TF	1985ThZX
							TF	1988Du10
							TF	1981Sh15
					−0.45(5)		CER	1974Ba45
								1974La05
								1975Kl07
<sup>125</sup> <sub>52</sub> Te	0	Stable	1/2 <sup>+</sup>	−0.8885051(4) −0.8884509(10)		<sup>2</sup> <sub>1</sub> H <sup>23</sup> <sub>11</sub> Na	N	1977Bu29
	36	1.48 ns	3/2 <sup>+</sup>	+0.605(4)		<sup>125</sup> <sub>52</sub> Te		1977Bu29
	145	58 d	11/2 <sup>−</sup>	−0.985(6)	−0.31(2)	<sup>129</sup> <sub>53</sub> I <sup>125</sup> <sub>52</sub> Te 36	ME	1953We51
	321	695 ps	9/2 <sup>−</sup>	−0.92(3)	−0.06(2)		ME	1975Bo51
	443	19 ps	3/2 <sup>+</sup>	+0.7(2) +0.59(9)			NMR/ON	1977La03
	463	13 ps	5/2 <sup>+</sup>	+0.50(12) +0.8(2)			NO/ME	1980Ge02
	526	<160 ps	7/2 <sup>−</sup>	<0			IPAC	1987Be36
	672	1.3 ps	5/2 <sup>+</sup>	−0.6(7)	0.12(+5, −9)	<sup>125</sup> <sub>52</sub> Te 36	IPAC	1970Cr07
<sup>126</sup> <sub>52</sub> Te	666	4.41 ps	2 <sup>+</sup>	+0.62(8) +0.68(6) +0.38(6)			IPAC	1976Va28
							TF	1988Be45
							IMPAC	1974Ro40
							TF	1988Be45
							TF	1985Gr17
							IPAC	1971Ro17
							TF	1988Be45
							TF	1988Du10
							TF	1985ThZX
							TF	1981Sh15
					−0.20(9)		CER	1975Ra24
<sup>127</sup> <sub>52</sub> Te	2975	10.6 ns	10 <sup>+</sup>	−1.52(9)			TDPAD	1983Go02
	0	9.4 h	3/2 <sup>+</sup>	0.635(4)		<sup>125</sup> <sub>52</sub> Te 36	NMR/ON	1979Ge04
	88	109 d	11/2 <sup>−</sup>	−1.041(6)		<sup>125</sup> <sub>52</sub> Te 36	NMR/ON	1980Ge02
	341	411 ps	9/2 <sup>−</sup>	−0.96(6) −0.98(15)			IPAC	1974So03
<sup>128</sup> <sub>52</sub> Te	743	3.2 ps	2 <sup>+</sup>	+0.50(6) +0.70(8) +0.62(8)			IPAC	1985De04
							TF	1988Du10
							TF	1985ThZX
							TF	1981Sh15

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Table 1 (continued)

Nucleus	$E$ (level)	$\tau_{1/2}$	$I^\pi$	$\mu$ (nm) <sup>*</sup>	$Q$ (b)	Ref. Std.	Method	Reference	
<sup>129</sup> <sub>52</sub> Te	0	69.5 m	3/2 <sup>+</sup>	0.702(4)	−0.06(5)	<sup>125</sup> <sub>52</sub> Te 36	CER	1978Be10	
					−0.14(12)		CER, R	1978Be10	
					0.055(13)		<sup>125</sup> <sub>52</sub> Te 36	NMR/ON	1979Ge04
							<sup>125</sup> <sub>52</sub> Te 36	NO/ME	1987Be36
<sup>130</sup> <sub>52</sub> Te	106	33.5 d	11/2 <sup>−</sup>	−1.091(7)	−0.15(10)	<sup>125</sup> <sub>52</sub> Te 36	NMR/ON	1979Ge04	
	840	2.3 ps	2 <sup>+</sup>	+0.58(10)		TF	1988Du10		
				+0.66(16)		TF	1985Gr17		
				+0.58(12)		TF	1981Sh15		
<sup>131</sup> <sub>52</sub> Te	0	25 m	3/2 <sup>+</sup>	0.696(9)	<sup>125</sup> <sub>52</sub> Te 36	CER	1976Bo12		
	182	30 h	11/2 <sup>−</sup>	−1.04(4)		NMR/ON	1979Ge04		
				(−)1.123(7)		NO/S	1975Lh01		
									NMR/ON
<sup>132</sup> <sub>52</sub> Te	1775	145 ns	6 <sup>+</sup>	+4.7(5)	<sup>131,2</sup> <sub>53</sub> I	TDPAC	1986Fo02		
<sup>133</sup> <sub>52</sub> Te	334	55.4 m	11/2 <sup>−</sup>	(−)1.129(7)		NMR/ON	1998Wh05		
<sup>134</sup> <sub>52</sub> Te	1691	163 ns	6 <sup>+</sup>	+5.08(15)		FDPAC	1976Wo03		
<sup>135</sup> <sub>52</sub> Te	1555	510 ns	19/2 <sup>−</sup>	−3.8(4)		FDPAC	1989Ra17		
<sup>117</sup> <sub>53</sub> I	0	2.22 m	(5/2) <sup>+</sup>	3.1(2)	<sup>131,2</sup> <sub>53</sub> I	NO/S	1986Gr06		
<sup>118</sup> <sub>53</sub> I	0	13.7 m	2 <sup>−</sup>	2.0(2)		NO/S	1986Gr06		
	104	8.5 m	(7 <sup>−</sup> )	4.2(2)		NO/S	1986Gr06		
<sup>119</sup> <sub>53</sub> I	0	19 m	5/2 <sup>+</sup>	(+)2.9(1)		<sup>131,2</sup> <sub>53</sub> I	NO/S	1986Gr06	
	307	35 ns	9/2 <sup>+</sup>	+5.40(14)	TDPAD	1982Da17			
				+5.5(4)	TDPAD	1982Ga21			
<sup>120</sup> <sub>53</sub> I	0	1.4 h	2 <sup>−</sup>	1.23(3)	<sup>131,2</sup> <sub>53</sub> I	NO/S	1986Gr06		
	~930	53 m	(7 <sup>−</sup> )	4.2(2)	<sup>131,2</sup> <sub>53</sub> I	NO/S	1986Gr06		
<sup>121</sup> <sub>53</sub> I	0	2.1 h	5/2 <sup>−</sup>	2.3(1)	<sup>131,2</sup> <sub>53</sub> I	NO/S	1986Gr06		
	2353	80 ns	(21/2 <sup>+</sup> )	+12.6(11)	TDPAD	1982Ha46			
				0	3.63 m	1 <sup>+</sup>	0.94(3)	<sup>131,2</sup> <sub>53</sub> I	NO/S
<sup>123</sup> <sub>53</sub> I	0	13.3 h	5/2 <sup>+</sup>	2.818(7)	<sup>131</sup> <sub>53</sub> I	NO/S	1988As06		
	2660	29 ns	21/2 <sup>+</sup>	+10.9(9)		NMR/ON	1979Sc13		
									TDPAD
<sup>124</sup> <sub>53</sub> I	0	4.18 d	2 <sup>−</sup>	1.446(4)	<sup>131</sup> <sub>53</sub> I	NMR/ON	1992Oh01		
				1.14(8)		NO/S	1983De55		
<sup>125</sup> <sub>53</sub> I	0	60.2 d	5/2 <sup>+</sup>	2.821(5)	<sup>131</sup> <sub>53</sub> I	NMR/ON	1979Sc13		
					<sup>127</sup> <sub>53</sub> I	MA, R	1958Fl39		
<sup>126</sup> <sub>53</sub> I	188	0.35 ns	3/2 <sup>+</sup>	+1.06(7)	−0.776(17)	<sup>127</sup> <sub>53</sub> I	IPAC	1973Ka37	
	0	13.1 d	2 <sup>−</sup>	1.438(4)			NMR/ON	1992Oh01	
	111	56 ns	Unknown	−2.24(2)			TDPAD	1989Ra17	
				0			Stable	5/2 <sup>+</sup>	+2.81327(8)
<sup>127</sup> <sub>53</sub> I								1939Sc16	
					0.72(2)		R	2004Al08	
					−0.710(10)		R	2001Bi17	
					(−)0.689(15)		R	2000Ha64	
					−0.789 e		AB/R	1976Fu06	
	58	1.95 ns	7/2 <sup>+</sup>	+2.54(5)	<sup>127</sup> <sub>53</sub> I	ME	1972Wo13		
					<sup>127</sup> <sub>53</sub> I	R	2001Bi17		
					<sup>127</sup> <sub>53</sub> I	ME, R	1964Pe15		
					−0.60(3)			2000Ha64	
							ME	1987Gr28	
<sup>128</sup> <sub>53</sub> I	203	0.388 ns	3/2 <sup>+</sup>	+0.97(7)	<sup>129</sup> <sub>53</sub> I	IPAC, R	1976Le23		
	138	845 ns	4 <sup>−</sup>	−0.72(3)		R	1982Al10		
	<sup>129</sup> <sub>53</sub> I	0	1.6 × 10 <sup>7</sup> y	7/2 <sup>+</sup>		+2.6210(3)	<sup>2</sup> <sub>1</sub> H	N	1951Wa12
<sup>129</sup> <sub>53</sub> I					−0.498(7)	<sup>127</sup> <sub>53</sub> I	R	2001Bi17	
					−0.482(10)		<sup>127</sup> <sub>53</sub> I	Q, MA, R	1953Li16
									2000Ha64
									1981De35
					−0.616(9)	<sup>129</sup> <sub>53</sub> I	R	2001Bi17	
					−0.598(13)		<sup>129</sup> <sub>53</sub> I	ME, R	1972Ro41
									2000Ha64
						−0.42(2)		ME	1987Gr28
	<sup>130</sup> <sub>53</sub> I	0	12.36 h	5 <sup>+</sup>	3.349(7)	<sup>127</sup> <sub>53</sub> I	NMR/ON	1992Oh01	
		203	229 ns	*5*	−0.24(2)		TDPAD	1989Ra17	
<sup>131</sup> <sub>53</sub> I	0	8.04 d	7/2 <sup>+</sup>	+2.742(1)	<sup>127</sup> <sub>53</sub> I	AB	1960Li13		
					−0.35(2)	<sup>127</sup> <sub>53</sub> I	AB, R	1960Li13	
								2000Ha64	

Table 1 (continued)

Nucleus	$E$ (level)	$\tau_{1/2}$	$I^\pi$	$\mu$ (nm) <sup>*</sup>	$Q$ (b)	Ref. Std.	Method	Reference
$^{132}_{53}\text{I}$	150	0.95 ns	$5/2^+$	+2.8(5)	0.65(4)	$^{129}_{53}\text{I}$ 28	IPAC	1967Ta07
	1797	5.9 ns	$(15/2)^-$	−1.2(4)			IPAC	1967Ta07
							TDPAC, R	1973Ha61
	0	2.28 h	$4^+$	3.088(7)	0.08(1)	$^{127}_{53}\text{I}$ $^{127}_{53}\text{I}$	AB AB, R	2000Ha64 1960Wh06 1960Wh06 2000Ha64
	50	0.95 ns	$3^+$	+2.2(3)	0.20(7)	$^{129}_{53}\text{I}$	IPAC IPAC, R	1969Si06 1979Oo01 2000Ha64
$^{133}_{53}\text{I}$	278	1.42 ns	$1^+$	+1.88(11)	(−)0.148(6)	$^{129}_{53}\text{I}$ $^{129}_{53}\text{I}$	TDPAC TDPAC, R	1979Oo01 1979Oo01 2000Ha64
	0	20.9 h	$7/2^+$	+2.856(5)	−0.24(1)	$^{127}_{53}\text{I}$ $^{127}_{53}\text{I}$	AB AB, R	1961Al20 1961Al20 2000Ha64
								1998Wh04
$^{135}_{53}\text{I}$	0	6.57 h	$7/2^+$	(+)2.940(2)	+1.16(4)	$^{129}_{54}\text{Xe}$	NMR/ON	1990NeZY
$^{117}_{54}\text{Xe}$	0	1.02 m	$5/2^+$	−0.5938(15) d			CFBLS	1990NeZY
$^{119}_{54}\text{Xe}$	0	5.8 m	$5/2^+$	−0.6542(15) d −0.59(6)			CFBLS CFBLS NO/S	1990NeZY 1990NeZY 1986ShZM
$^{121}_{54}\text{Xe}$	0	39 m	$5/2^+$	−0.701(3) d −0.65(3)	+1.31(5)	$^{131}_{54}\text{Xe}$ $^{129}_{54}\text{Xe}$	CFBLS CFBLS NO/S	1990NeZY 1990NeZY 1986ShZM
					+1.33(5)	$^{131}_{54}\text{Xe}$	CFBLS	1990NeZY
						$^{129}_{54}\text{Xe}$	CFBLS	1990NeZY
$^{123}_{54}\text{Xe}$	0	2.00 h	$1/2^+$	−0.150(3) d	1.33(14)	$^{135}_{54}\text{Xe}$ 296	TDPAD	1982Ch25
	180 + $x$	5.2 $\mu\text{s}$	$7/2^{(-)}$	−0.902(7)			TDPAD	1982Ch25
	201 + $x$	17 ns	$9/2^-$				TDPAD	1982Ch25
$^{124}_{54}\text{Xe}$	354	56 ps	$2^+$	+0.46(4)	1.1(5)	$^{133}_{54}\text{Xe}$ 180 + $x$	IMPAC	1975Go18
$^{125}_{54}\text{Xe}$	0	17.1 h	$1/2^+$	−0.269(3) d	+0.424(15)	$^{132}_{54}\text{Xe}$ 668	CFBLS	1990NeZY
	253	57 s	$9/2^-$	−0.7453(8) d		$^{129}_{54}\text{Xe}$	CFBLS	1990NeZY
						$^{131}_{54}\text{Xe}$	CFBLS	1990NeZY
$^{126}_{54}\text{Xe}$	296	140 ns	$7/2^+$	+0.93(4)	1.40(15)	$^{131}_{54}\text{Xe}$	TDPAD	1983Al21
							TDPAD	1983Al21
	389	41.2 ps	$2^+$	+0.74(14) +0.54(8)		$^{132}_{54}\text{Xe}$ 668	IMPAC	1977Ar19
$^{127}_{54}\text{Xe}$	0	36.4 d	$1/2^+$	−0.5033(11) d −0.5039(2)	+0.69(2)	$^{129}_{54}\text{Xe}$ $^{129}_{54}\text{Xe}$ $^{129}_{54}\text{Xe}$	CFBLS CFBLS CFBLS	1990NeZY 1990NeZY 1990NeZY
	297	1.15 m	$9/2^-$	−0.8844(10) d		$^{131}_{54}\text{Xe}$	TDPAD	1984Lo07
	342	37 ns	$7/2^+$	+0.85(3)		$^{126}_{54}\text{Xe}$ 389	IMPAC	1977Ar19
$^{128}_{54}\text{Xe}$	443	21.4 ps	$2^+$	+0.82(14) +0.62(6)	−0.393(10) −0.41(4)	$^{132}_{54}\text{Xe}$ 668	IMPAC	1975Go18
	2787	83 ns	$8^-$	−0.29(7)			TDPAD	1984Lo07
	0	Stable	$1/2^+$	−0.777976(8)		$^2_1\text{H}$	N	1968Br12
$^{129}_{54}\text{Xe}$	40	0.98 ns	$3/2^+$	+0.58(8)	−0.393(10) −0.41(4)	$^{129}_{54}\text{Xe}$	ME	1974VaYZ
						$^{131}_{54}\text{Xe}$	R	2001Ke15
						$^{131}_{54}\text{Xe}$	ME	1964Pe06
$^{130}_{54}\text{Xe}$	236	8.89 d	$11/2^-$	−0.8906(12) d −0.891223(4)	+0.64(2)	$^{129}_{54}\text{Xe}$ $^{131}_{54}\text{Xe}$ 164	CFBLS N, OP/RD, NO/S	1990NeZY 1986Ki16 1974Si07
				0.8911(5)		$^{133}_{54}\text{Xe}$ $^{131}_{54}\text{Xe}$	NMR/ON CFBLS	1987Ed01 1990NeZY
	538	9.7 ps	$2^+$	+0.67(2) +0.76(14) +0.62(8)		$^{126}_{54}\text{Xe}$ 389 $^{132}_{54}\text{Xe}$ 668	TF IMPAC IMPAC	2002Ja02 1977Ar19 1975Go18
$^{131}_{54}\text{Xe}$	1122	4.6 ps	$2^+$	+0.9(2)	−0.114(1)		TF	2002Ja02
	1205	2.4 ps	$4^+$	+1.7(2)			TF	2002Ja02
	2972	5.17 ns	$10^+$	−2.05(14) −1.6(2)			TDPAD	1983Go02
$^{131}_{54}\text{Xe}$	0	Stable	$3/2^+$	+0.6915(2) d +0.691862(4)	−0.114(1)	$^{129}_{54}\text{Xe}$	IPAC	1985Ku15
						$^2_1\text{H}$	CFBLS	1990NeZY
						Calc efg	R	1968Br12 2001Ke15

(continued on next page)

Table 1 (continued)

Nucleus	$E$ (level)	$\tau_{1/2}$	$I^\pi$	$\mu$ (nm) <sup>*</sup>	$Q$ (b)	Ref. Std.	Method	Reference
					−0.117(6) −0.116(4) −0.120(12)	Calc efg	R, CFBLS CFBLS AB	2000Pa02 1989Bo03 1961Fa05
	164	11.8 d	11/2 <sup>−</sup>	−0.994(2) d 0.9940(5) −0.994048(6)		<sup>129</sup> <sub>54</sub> Xe <sup>133</sup> <sub>54</sub> Xe	CFBLS NMR/ON N, OP/RD, NO/S	1990NeZY 1987Ed01 1986Ki16 1974Si07
<sup>132</sup> <sub>54</sub> Xe	668	4.7 ps	2 <sup>+</sup>	+0.63(2) +0.70(7) +0.74(10) +0.78(10)	+0.73(3)	<sup>131</sup> <sub>54</sub> Xe	CFBLS TF	1990NeZY 2002Ja02
	1298	3.0 ps	2 <sup>+</sup>	+0.2(4)		<sup>126</sup> <sub>54</sub> Xe 389	TF, R IMPAC	2002Ja02 1977Ar19
	1440	1.8 ps	4 <sup>+</sup>	+2.4(4)			IPAC, R TF	1975Go18 2002Ja02
	2214	90 ns	7 <sup>−</sup>	−0.06(3)			TDPAD	1986Vo14
	2753	8.4 ms	10 <sup>+</sup>	(−)1.95(5)	0.010(5)		TDPAD	1987Le31
<sup>133</sup> <sub>54</sub> Xe	0	5.24 d	3/2 <sup>+</sup>	+0.8129(5) d +0.81340(7) 0.81(1) +0.8125(3) +0.81(1) 0.80(10)		<sup>129</sup> <sub>54</sub> Xe <sup>131</sup> <sub>54</sub> Xe 164	CFBLS N, OP/RD NMR/ON	1990NeZY 1986Ki16 1989Ra99
						<sup>129,131</sup> <sub>54</sub> Xe	LRS	1989Ra99
						<sup>131</sup> <sub>54</sub> Xe	O	1978Hu04
							NO/S	1974Si07
					+0.142(5)	<sup>131</sup> <sub>54</sub> Xe	CFBLS	1990NeZY
					+0.145(14)	<sup>131</sup> <sub>54</sub> Xe	LRS	1989Ra99
					+0.12(4)	<sup>131</sup> <sub>54</sub> Xe	O	1978Hu04
	233	2.19 d	11/2 <sup>−</sup>	−1.0825(13) d		<sup>129</sup> <sub>54</sub> Xe	CFBLS	1990NeZY
<sup>134</sup> <sub>54</sub> Xe	847	1.9 ps	2 <sup>+</sup>	+0.708(14) 1.1(2)	+0.77(3)	<sup>131</sup> <sub>54</sub> Xe	CFBLS	1990NeZY
	1731	2.2 ps	4 <sup>+</sup>	+3.2(6)		<sup>132</sup> <sub>54</sub> Xe 668	TF	2002Ja02
<sup>135</sup> <sub>54</sub> Xe	0	9.10 h	3/2 <sup>+</sup>	+0.9032(7) d 0.9031(2)		<sup>129</sup> <sub>54</sub> Xe <sup>131</sup> <sub>54</sub> Xe 164	CFBLS N, OP/RD	1990NeZY 1987CaZU
					+0.214(7)	<sup>131</sup> <sub>54</sub> Xe	CFBLS	1990NeZY
	527	15.3 m	11/2 <sup>−</sup>	−1.1036(14) d 1.1030(2)		<sup>129</sup> <sub>54</sub> Xe <sup>131</sup> <sub>54</sub> Xe 164	CFBLS N, OP/RD	1990NeZY 1987CaZU
<sup>136</sup> <sub>54</sub> Xe	1313	0.36 ps	2 <sup>+</sup>	+1.53(9) +1.7(2)	+0.62(2)	<sup>131</sup> <sub>54</sub> Xe	CFBLS	1990NeZY
							TF	2002Ja02
							TF, R	2002Ja02
	1694	1.32 ns	4 <sup>+</sup>	4.3(17) 3.2(6)			TF	1993Sp01
<sup>137</sup> <sub>54</sub> Xe	0	3.82 m	7/2 <sup>−</sup>	−0.968(8)		<sup>129,131</sup> <sub>54</sub> Xe	CFBLS	2002Ja02
					−0.48(2)	<sup>131</sup> <sub>54</sub> Xe	CFBLS	1985Be04
<sup>139</sup> <sub>54</sub> Xe	0	39.7 s	3/2 <sup>−</sup>	−0.304(10)		<sup>129,131</sup> <sub>54</sub> Xe	CFBLS	1989Bo03
					+0.40(2)	<sup>131</sup> <sub>54</sub> Xe	CFBLS	1989Bo03
<sup>141</sup> <sub>54</sub> Xe	0	1.73 s	5/2 <sup>+</sup>	+0.010(4)		<sup>129,131</sup> <sub>54</sub> Xe	CFBLS	1989Bo03
					−0.58(2)	<sup>131</sup> <sub>54</sub> Xe	CFBLS	1989Bo03
<sup>143</sup> <sub>54</sub> Xe	0	0.30 s	5/2 <sup>−</sup>	−0.4599(14)		<sup>129,131</sup> <sub>54</sub> Xe	CFBLS	1989Bo03
					+0.93(3)	<sup>131</sup> <sub>54</sub> Xe	CFBLS	1989Bo03
<sup>118</sup> <sub>55</sub> Cs	(0)	14 s	2	+3.876(5)		<sup>133</sup> <sub>55</sub> Cs	ABLS	1987Co19
					+1.4(2) st		ABLS	1987Co19
	(0)	17 s	(6 <sup>−</sup> )	5.4(11)			NO/S	1987Sh12
<sup>119</sup> <sub>55</sub> Cs	(0)	36 s	9/2 <sup>+</sup>	+5.46(3)		<sup>133</sup> <sub>55</sub> Cs	ABLS	1987Co19
					+2.8(1) st		ABLS	1987Co19
	(0)	28 s	3/2 <sup>+</sup>	+0.838(5)		<sup>133</sup> <sub>55</sub> Cs	ABLS	1987Co19
					+0.9(1) st		ABLS	1987Co19
<sup>120</sup> <sub>55</sub> Cs	0	64 s	2 <sup>+</sup>	+3.87(2)		<sup>133</sup> <sub>55</sub> Cs	ABLS	1987Co19
					+1.45(2) st		ABLS	1987Co19
				+3.92(5)		<sup>133</sup> <sub>55</sub> Cs	AB	1978Ek03
<sup>121</sup> <sub>55</sub> Cs	0	2.27 m	3/2 <sup>+</sup>	+0.770(4) 0.79(2)		<sup>133</sup> <sub>55</sub> Cs	ABLS	1987Co19
						<sup>133</sup> <sub>55</sub> Cs	AB	1977Ek02
					+0.838(9) st		ABLS	1987Co19
	~36	2.02 m	9/2 <sup>+</sup>	+5.41(3)		<sup>133</sup> <sub>55</sub> Cs	ABLS	1987Co19



Table 1 (continued)

Nucleus	$E$ (level)	$\tau_{1/2}$	$I^\pi$	$\mu$ (nm) <sup>*</sup>	$Q$ (b)	Ref. Std.	Method	Reference
$^{122}_{55}\text{Cs}$	(0)	21 s	$1^+$	$-0.1333(9)$ $0.133(2)$	$+2.69(5)$ st	$^{133}_{55}\text{Cs}$	ABLS	1987Co19
						$^{133}_{55}\text{Cs}$	ABLS	1987Co19
							AB	1977Ek02
	(0)	4.2 m	$8^-$	$+5.41(3)$	$-0.19(1)$ st	$^{133}_{55}\text{Cs}$	ABLS	1987Co19
$^{123}_{55}\text{Cs}$	0	5.8 m	$1/2^+$	$+1.377(7)$ $+1.39(2)$	$+3.29(8)$ st	$^{133}_{55}\text{Cs}$	ABLS	1987Co19
						$^{133}_{55}\text{Cs}$	ABLS	1987Co19
							AB	1977Ek02
$^{124}_{55}\text{Cs}$	0	30.8 s	$1^+$	$+0.673(3)$ $+0.674(7)$	$-0.74(3)$ st	$^{133}_{55}\text{Cs}$	ABLS	1987Co19
						$^{133}_{55}\text{Cs}$	AB	1977Ek02
							ABLS	1987Co19
$^{125}_{55}\text{Cs}$	0	45 m	$1/2^+$	$+1.409(7)$		$^{133}_{55}\text{Cs}$	ABLS	1987Co19
$^{126}_{55}\text{Cs}$	0	1.64 m	$1^+$	$+0.777(4)$ $+0.779(8)$	$-0.68(2)$ st	$^{133}_{55}\text{Cs}$	ABLS	1987Co19
						$^{133}_{55}\text{Cs}$	AB	1977Ek02
							ABLS	1987Co19
$^{127}_{55}\text{Cs}$	0	6.2 h	$1/2^+$	$+1.459(7)$ $2.7(5)$	$0.58(12)$	$^{133}_{55}\text{Cs}$	ABLS	1987Co19
							TDPAC	1999Co22
							TDPAC	1999Co22
$^{128}_{55}\text{Cs}$	0	3.62 m	$1^+$	$+0.974(5)$ $+0.977(10)$	$-0.570(8)$ st	$^{80}_{37}\text{Rb}$ 561	TDPAC	1999Co22
						$^{133}_{55}\text{Cs}$	ABLS	1987Co19
						$^{133}_{55}\text{Cs}$	AB	1977Ek02
$^{129}_{55}\text{Cs}$	0	32.3 h	$1/2^+$	$+1.491(8)$ $+6.55(10)$	$-0.570(8)$ st	$^{133}_{55}\text{Cs}$	ABLS	1987Co19
						$^{133}_{55}\text{Cs}$	ABLS	1987Co19
							TDPAD	1978De29
$^{130}_{55}\text{Cs}$	0	29.9 m	$1^+$	$+1.460(7)$ $+1.466(15)$	$-0.059(6)$ st	$^{133}_{55}\text{Cs}$	ABLS	1987Co19
						$^{133}_{55}\text{Cs}$	AB	1977Ek02
							ABLS	1987Co19
	$0+x$	3.7 m	$5^{(-)}$	$+0.629(4)$ $+0.631(10)$	$+1.45(5)$ st	$^{133}_{55}\text{Cs}$	ABLS	1987Co19
						$^{133}_{55}\text{Cs}$	AB	1977Ek02
							ABLS	1987Co19
$^{131}_{55}\text{Cs}$	0	9.69 d	$5/2^+$	$+3.53(2)$ $+3.543(2)$	$-0.575(6)$ st $-0.67(4)$ st	$^{133}_{55}\text{Cs}$	ABLS	1981Th06
							AB/D	1965Wo05
							OL, OD, R	
	134	8.7 ns	$5/2^+$	$+1.86(8)$	$0.022(3)$		ABLS	1981Th06
							TDPAC	1973Ao99
							TDPAC	2000De13
$^{132}_{55}\text{Cs}$	0	6.47 d	$2^{(-)}$	$+2.222(7)$ $+2.23(1)$	$+0.508(7)$ st $+0.49(2)$ st	$^{133}_{55}\text{Cs}$ 81	OL	1975Ac01
						$^{133}_{55}\text{Cs}$	ABLS	1981Th06
							OL	1975Ac01
$^{133}_{55}\text{Cs}$	0	Stable	$7/2^+$	$+2.582025(3)$ $+2.5829128(15)$	$-0.00355(4)$ $-0.00371(14)$	$^{83}_{37}\text{Rb}$	ABLS	1981Th06
						$^2_1\text{H}$	OP/RD	1973Wh01
							N	1968Lu07
	81	6.31 ns	$5/2^+$	$+3.45(2)$	$-0.009(4)$ st $-0.33(2)$ st		R	2003Ge06
							OL	1988Ta17
								1981Th06
$^{134}_{55}\text{Cs}$	161	190 ps	$5/2^+$	$+2.0(2)$ $+2.9937(9)$ $+2.99(2)$	$+0.389(3)$ st $+0.38(4)$ st	$^{133}_{55}\text{Cs}$	ABLS	1981Th06
						$^{133}_{55}\text{Cs}$	ME	1968Ca03
						$^{133}_{55}\text{Cs}$	ME	1977Ca30
	0	2.06 y	$4^+$	$+2.0(2)$ $+2.9937(9)$ $+2.99(2)$	$+0.389(3)$ st $+0.38(4)$ st	$^{133}_{55}\text{Cs}$	IPAC	1979Th02
						$^{133}_{55}\text{Cs}$	AB/D	1957St11
						$^{133}_{55}\text{Cs}$	ABLS	1981Th06
	11	47 ns	$5^+$	$+3.35(7)$ $+1.0978(2)$ $+1.111(6)$	$+0.389(3)$ st $+0.38(4)$ st	$^{133}_{55}\text{Cs}$	OD, R	1975Ac01
						$^{133}_{55}\text{Cs}$	ABLS	1981Th06
							TDPAC	1970DrZX
$^{135}_{55}\text{Cs}$	0	$3 \times 10^6$ y	$7/2^+$	$+2.7324(2)$ $+2.73(1)$	$+0.98(8)$ st	$^{133}_{55}\text{Cs}$	AB/D	1962Co14
						$^{133}_{55}\text{Cs}$	ABLS	1981Th06
						$^{133}_{55}\text{Cs}$	ABLS	1981Th06
	1633	53 m	$19/2^-$	$+2.18(1)$	$+0.050(2)$ st $+0.03(2)$ st $+0.89(7)$	$^{133}_{55}\text{Cs}$	OL, OD, R	1975Ac01
						$^{133}_{55}\text{Cs}$	ABLS	1981Th06
						$^{133}_{55}\text{Cs}$	ABLS	1981Th06

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Nucleus	$E$ (level)	$\tau_{1/2}$	$I^\pi$	$\mu$ (nm) <sup>*</sup>	$Q$ (b)	Ref. Std.	Method	Reference
<sup>136</sup> <sub>55</sub> Cs	0	13.2 d	5 <sup>+</sup>	+3.711(15) +3.71(2)			OL	1975Ac01
						<sup>133</sup> <sub>55</sub> Cs	ABLS	1981Th06
					+0.225(10) st		OL	1975Ac01
					+0.17(6) st		ABLS	1981Th06
	0 + $x$	19 s	8 <sup>−</sup>	+1.319(7)		<sup>133</sup> <sub>55</sub> Cs	ABLS	1981Th06
					+0.74(10)		ABLS	1981Th06
<sup>137</sup> <sub>55</sub> Cs	0	30.17 y	7/2 <sup>+</sup>	+2.8513(7) +2.838(7) +2.84(1)		<sup>133</sup> <sub>55</sub> Cs	AB/D	1957St11
						<sup>133</sup> <sub>55</sub> Cs	CFBLS	1978Sc27
						<sup>133</sup> <sub>55</sub> Cs	ABLS	1981Th06
					+0.051(1) st		OL, OD, R	1975Ac01
					+0.06(2) st		CFBLS	1978Sc27
					+0.03(4) st		ABLS	1981Th06
<sup>138</sup> <sub>55</sub> Cs	0	32.2 m	3 <sup>−</sup>	+0.700(4) +0.701(7) +0.701(14)		<sup>133</sup> <sub>55</sub> Cs	ABLS	1981Th06
						<sup>133</sup> <sub>55</sub> Cs	AB	1979Ek02
						<sup>133</sup> <sub>55</sub> Cs	CFBLS	1979Bo01
					+0.13(2) st		CFBLS	1979Bo01
					+0.12(2) st		ABLS	1981Th06
	80	2.9 m	6 <sup>−</sup>	+1.713(9)		<sup>133</sup> <sub>55</sub> Cs	ABLS	1981Th06
					−0.40(3)		ABLS	1981Th06
<sup>139</sup> <sub>55</sub> Cs	0	9.4 m	7/2 <sup>+</sup>	+2.696(4) +2.70(1) +2.70(3)		<sup>133</sup> <sub>55</sub> Cs	CFBLS	1979Bo01
						<sup>133</sup> <sub>55</sub> Cs	ABLS	1981Th06
						<sup>133</sup> <sub>55</sub> Cs	AB	1979Ek02
					−0.075(11) st		CFBLS	1979Bo01
					−0.06(3) st		ABLS	1981Th06
<sup>140</sup> <sub>55</sub> Cs	0	65 s	1 <sup>−</sup>	+0.1338953(5) +0.134(1) +0.134(2) +0.134(3)		<sup>133</sup> <sub>55</sub> Cs	ABLS	1986Du16
						<sup>133</sup> <sub>55</sub> Cs	ABLS	1981Th06
						<sup>133</sup> <sub>55</sub> Cs	AB	1979Ek02
						<sup>133</sup> <sub>55</sub> Cs	CFBLS	1979Bo01
					−0.112(7) st		CFBLS	1979Bo01
					−0.10(2) st		ABLS	1981Th06
<sup>141</sup> <sub>55</sub> Cs	0	25.1 s	7/2 <sup>+</sup>	+2.438(10) +2.42(3) +2.41(1)		<sup>133</sup> <sub>55</sub> Cs	CFBLS	1979Bo01
						<sup>133</sup> <sub>55</sub> Cs	ABLS	1981Th06
						<sup>133</sup> <sub>55</sub> Cs	AB	1979Ek02
					−0.36(4) st		CFBLS	1979Bo01
					−0.45(7) st		ABLS	1981Th06
<sup>143</sup> <sub>55</sub> Cs	0	1.78 s	3/2 <sup>+</sup>	+0.870(4)		<sup>133</sup> <sub>55</sub> Cs	ABLS	1981Th06
					+0.47(3) st		ABLS	1981Th06
<sup>144</sup> <sub>55</sub> Cs	0	1.00 s	(1 <sup>−</sup> )	−0.546(3)		<sup>133</sup> <sub>55</sub> Cs	ABLS	1981Th06
					+0.30(1) st		ABLS	1981Th06
<sup>145</sup> <sub>55</sub> Cs	0	0.59 s	3/2 <sup>+</sup>	+0.784(4)		<sup>133</sup> <sub>55</sub> Cs	ABLS	1981Th06
					+0.62(6) st		ABLS	1981Th06
<sup>146</sup> <sub>55</sub> Cs	0	0.34 s	1 <sup>−</sup>	−0.515(2)		<sup>133</sup> <sub>55</sub> Cs	ABLS	1987Co19
					+0.22(3) st		ABLS	1987Co19
<sup>121</sup> <sub>56</sub> Ba	0	30 s	5/2 <sup>(+)</sup>	+0.660(1)		<sup>135,7</sup> <sub>56</sub> Ba	CFBLS	1988We14
					+1.79(12) st	<sup>135,7</sup> <sub>56</sub> Ba	CFBLS	1988We14
<sup>123</sup> <sub>56</sub> Ba	0	2.7 m	5/2 <sup>+</sup>	−0.680(1) −0.69(2)		<sup>135,7</sup> <sub>56</sub> Ba	CFBLS	1988We14
						<sup>135,7</sup> <sub>56</sub> Ba	CFBLS	1983Mu12
					+1.49(12) st	<sup>135,7</sup> <sub>56</sub> Ba	CFBLS	1988We14
					+1.52(13)	<sup>135,7</sup> <sub>56</sub> Ba	CFBLS	1983Mu12
<sup>125</sup> <sub>56</sub> Ba	0	3.5 m	1/2 <sup>+</sup>	+0.177(12)		<sup>135,</sup>		

Table 1 (continued)

Nucleus	$E$ (level)	$\tau_{1/2}$	$I^\pi$	$\mu$ (nm) <sup>*</sup>	$Q$ (b)	Ref. Std.	Method	Reference	
<sup>131</sup> <sub>56</sub> Ba	0	11.8 d	1/2 <sup>+</sup>	0.708113(15) −0.71(2)	+2.8(3)	<sup>137</sup> <sub>56</sub> Ba <sup>135,7</sup> <sub>56</sub> Ba	CLS	2002Mo31	
							TIS	1987Kn10	
	188	14.6 m	9/2 <sup>−</sup>	−0.87(2)	+1.46(13) st	<sup>135,7</sup> <sub>56</sub> Ba <sup>135,7</sup> <sub>56</sub> Ba	ABLFS, R	1983Mu12	
							CFBLS	1979Be25	
<sup>132</sup> <sub>56</sub> Ba	465	18 ps	2 <sup>+</sup>	+0.68(6) −1.56(11)		<sup>135,7</sup> <sub>56</sub> Ba <sup>135,7</sup> <sub>56</sub> Ba	CFBLS	1983Mu12	
							TF	1980Br01	
	3115	12.3 ns	10 <sup>+</sup>	−1.59(5)			IPAD	1995Ha26	
							TDPAD	1996Da02	
<sup>133</sup> <sub>56</sub> Ba	0	10.7 y	1/2 <sup>+</sup>	0.77167(2) −0.769(3) −0.777(14)		<sup>137</sup> <sub>56</sub> Ba <sup>135</sup> <sub>56</sub> Ba <sup>135,7</sup> <sub>56</sub> Ba <sup>135,7</sup> <sub>56</sub> Ba	TIS	1987Kn10	
							O	1976Ho13	
							CFBLS	1983Mu12	
							XHFS	1981Gr18	
	12	4.7 ns	3/2 <sup>+</sup>	+0.51(7)		<sup>135</sup> <sub>56</sub> Ba <sup>135,7</sup> <sub>56</sub> Ba	ABLFS, R	1983Mu12	
							288	38.9 h	11/2 <sup>−</sup>
	+0.89(7) st	<sup>135,7</sup> <sub>56</sub> Ba	ABLFS, R	1983Mu12					
<sup>134</sup> <sub>56</sub> Ba	605	5.1 ps	2 <sup>+</sup>	+0.86(10) +0.82(12)	[−0.32(6) or +0.09(6)] OR [−0.20(6) or +0.21(6)] −0.34(16) or −0.13(16)		TF	1980Br01	
							IMPAC	1980Eb01	
							CER	1989Bu07	
<sup>135</sup> <sub>56</sub> Ba	2957 0	2.6 μs Stable	10 <sup>+</sup> 3/2 <sup>+</sup>	−2.0(1) +0.83794(2) 0.838627(2)	+0.160(3) st +0.15(2) st	<sup>35</sup> <sub>17</sub> Cl	CER	1977K105	
							TDPAD	1982BeZY	
							OP/RD	1972Ol01	
							N	1978Lu07	
							R	1988We07	
							OL, R	1983Mu12	
	268	28.7 h	11/2 <sup>−</sup>	−1.001(15)	0.150(15) 0.16(3) st 0.22(3)		<sup>135,7</sup> <sub>56</sub> Ba <sup>135,7</sup> <sub>56</sub> Ba	CFBLS	1986Si03
								ABLFS	1979Ba74
								ABLS, R	1982Gr14
									1979Gu09
								ABLFS	1982Gr14
								ABLFS, R	1983Mu12
<sup>136</sup> <sub>56</sub> Ba	819	1.93 ps	2 <sup>+</sup>	+0.69(10)	−0.19(6) or +0.07(7) +0.01(5) or +0.25(5)		ABLFS, R	1979Be25	
								1980Br01	
							CER	1986Ro15	
							CER	1984Be20	
	2140	1.5 ns	5 <sup>−</sup>	−1.9(2)			IPAC	1979Oh03	
							OP/RD	1972Ol01	
<sup>137</sup> <sub>56</sub> Ba	0	Stable	3/2 <sup>+</sup>	+0.93737(2) 0.93734(2)	+0.245(4) st +0.23(3) st	<sup>135</sup> <sub>56</sub> Ba	N	1978Lu07	
							R	1988We07	
							OL, R	1983Mu12	
								1976Ma28	
							R	1986Si03	
							CFBLS	1986Si03	
	662	2.55 m	11/2 <sup>−</sup>	−0.99(3)	+0.78(9)	<sup>135,7</sup> <sub>56</sub> Ba <sup>135,7</sup> <sub>56</sub> Ba	ABLS	1979Gu09	
							ABLFS	1982Gr14	
							ABLFS, R	1983Mu12	
							ABLFS, R	1983Mu12	
<sup>138</sup> <sub>56</sub> Ba	1436	0.206 ps	2 <sup>+</sup>	+1.4(2)	−0.14(6) or +0.08(6)		TF	1987Ba65	
							CER	1989Bu07	
	1899	2.17 ns	4 <sup>+</sup>	3.2(6)			IPAC	1985Be04	
							2091	0.8 μs	6 <sup>+</sup>
0	84.6 m	7/2 <sup>−</sup>	−0.973(5) −0.98(2)		<sup>135,7</sup> <sub>56</sub> Ba <sup>135,7</sup> <sub>56</sub> Ba	CFBLS	1988We07		
							CFBLS	1983Mu12	
<sup>139</sup> <sub>56</sub> Ba	0	84.6 m	7/2 <sup>−</sup>	−0.98(2)	−0.573(13) st −0.50(4) st	<sup>135,7</sup> <sub>56</sub> Ba <sup>135,7</sup> <sub>56</sub> Ba	CFBLS	1988We07	
							CFBLS	1983Mu12	
							CFBLS	1988We07	
							CFBLS	1983Mu12	
							CFBLS	1988We07	
							CFBLS	1983Mu12	
<sup>141</sup> <sub>56</sub> Ba	0	18.7 m	3/2 <sup>−</sup>	−0.337(5) −0.35(2)	+0.454(10) st +0.43(4) st	<sup>135,7</sup> <sub>56</sub> Ba <sup>135,7</sup> <sub>56</sub> Ba <sup>135,7</sup> <sub>56</sub> Ba <sup>135,7</sup> <sub>56</sub> Ba	CFBLS	1988We07	
							CFBLS	1983Mu12	
							CFBLS	1988We07	
							CFBLS	1983Mu12	
							CFBLS	1988We07	
							CFBLS	1983Mu12	

(continued on next page)

Table 1 (continued)

Nucleus	$E$ (level)	$\tau_{1/2}$	$I^\pi$	$\mu$ (nm) <sup>*</sup>	$Q$ (b)	Ref. Std.	Method	Reference
<sup>142</sup> <sub>56</sub> Ba	359	66 ps	2 <sup>+</sup>	0.85(10)			IPAC, R	1988Wo03 1986Gi14
<sup>143</sup> <sub>56</sub> Ba	0	14.5 s	5/2 <sup>(+)</sup>	+0.443(11) +0.45(2)		<sup>135,7</sup> <sub>56</sub> Ba <sup>135,7</sup> <sub>56</sub> Ba	CFBLS CFBLS	1988We07 1983Mu12
					−0.88(2) st −0.81(7) st	<sup>135,7</sup> <sub>56</sub> Ba <sup>144</sup> <sub>56</sub> Ba 199	CFBLS IMPAC	1988We07 1983Mu12
<sup>144</sup> <sub>56</sub> Ba	117	2.6 ns	9/2 <sup>−</sup>	+0.5(3)		<sup>135,7</sup> <sub>56</sub> Ba	CFBLS	1999Sm05
<sup>145</sup> <sub>56</sub> Ba	199	0.70 ns	2 <sup>+</sup>	0.68(10)		<sup>144</sup> <sub>56</sub> Ba 199	IPAC	1983Wo05
<sup>145</sup> <sub>56</sub> Ba	0	4.31 s	5/2 <sup>(−)</sup>	−0.285(7) −0.27(4)		<sup>135,7</sup> <sub>56</sub> Ba <sup>135,7</sup> <sub>56</sub> Ba	CFBLS CFBLS	1988We07 1983Mu12
					+1.22(2) st + 1.15(10) st	<sup>135,7</sup> <sub>56</sub> Ba <sup>144</sup> <sub>56</sub> Ba 199	CFBLS CFBLS IMPAC	1988We07 1983Mu12 1999Sm05
<sup>146</sup> <sub>56</sub> Ba	113	(0.21) ns	7/2 <sup>−</sup>	−1.4(10)		<sup>144</sup> <sub>56</sub> Ba 199	IMPAC	1999Sm05
	181	0.85 ns	2 <sup>+</sup>	0.56(14) +0.4(2)		<sup>144</sup> <sub>56</sub> Ba 199	IPAC IMPAC	1983Wo05 1999Sm05
<sup>133</sup> <sub>57</sub> La	536	60 ns	11/2 <sup>−</sup>	7.5(5)			TDPAC	1979BuZW
<sup>135</sup> <sub>57</sub> La	0	19.5 h	5/2 <sup>+</sup>	+3.70(9)		<sup>139</sup> <sub>57</sub> La <sup>139</sup> <sub>57</sub> La	CFBLS CFBLS	2003II03 2003II03
					−0.4(4)		TDPAD	1976Le29
<sup>137</sup> <sub>57</sub> La	2737	50 ns	(27/2) <sup>+</sup>	0.0(2)		<sup>139</sup> <sub>57</sub> La	CFBLS	2003II03
	0	6 × 10 <sup>4</sup> y	7/2 <sup>+</sup>	+2.700(15) +2.695(6)		<sup>139</sup> <sub>57</sub> La <sup>139</sup> <sub>57</sub> La	O CFBLS	1972Fi19 2003II03
					+0.21(3) +0.24(7) st +0.24(7) st	<sup>139</sup> <sub>57</sub> La <sup>139</sup> <sub>57</sub> La <sup>137</sup> <sub>57</sub> La	O ME TDPAD	1972Fi19 1978Ge20 1982KiZV
<sup>138</sup> <sub>57</sub> La	10	89 ns	5/2 <sup>+</sup>			<sup>139</sup> <sub>57</sub> La	N	1977Kr12
	1870	365 ns	19/2 <sup>−</sup>	+2.34(6)				1955So31
	0	1.1 × 10 <sup>11</sup> y	5 <sup>+</sup>	+3.713646(7)		<sup>139</sup> <sub>57</sub> La		1979Ch39
					+0.45(2) st 0.43(2) st	<sup>139</sup> <sub>57</sub> La <sup>139</sup> <sub>57</sub> La	ABLDF QIR	1977Kr12
<sup>139</sup> <sub>57</sub> La	73	116 ns	3 <sup>+</sup>	+2.89(5)		<sup>19</sup> F 197	TDPAD	1979Bo11
	0	Stable	7/2 <sup>+</sup>	+2.7830455(9)		<sup>2</sup> H	N, O	1977Kr12
					+0.20(1) st		CFBLS, R	1982Ba08 1982Ho02
<sup>140</sup> <sub>57</sub> La	0	40.3 h	3 <sup>−</sup>	+0.730(15)		<sup>139</sup> <sub>57</sub> La <sup>139</sup> <sub>57</sub> La	AB NO/S, AB	1969HuZY
					+0.094(10) st			1971Ch02
<sup>126</sup> <sub>58</sub> Ce	2887	8 ps	10 <sup>+</sup>	~+10			IPAD	1987IsZS
	3317	4 ps	12 <sup>+</sup>	~+12			IPAD	1987IsZS
<sup>129</sup> <sub>58</sub> Ce	108	60 ns	9/2 <sup>−</sup>	−0.83(5)			TDPAD	1998Io01
					1.32(13)	<sup>138</sup> <sub>58</sub> Ce 3538	TDPAD	1998Io01
<sup>130</sup> <sub>58</sub> Ce	2454	109 ns	7 <sup>−</sup>		1.8(2)		TDPAD	1999Io02
<sup>131</sup> <sub>58</sub> Ce	162	88 ns	9/2 <sup>−</sup>	−0.85(3)			TDPAD	1998Io01
					0.92(10)	<sup>138</sup> <sub>58</sub> Ce 3538	TDPAD	1998Io01
<sup>134</sup> <sub>58</sub> Ce	3209	308 ns	10 <sup>+</sup>	−1.87(2) −1.9(1)			TDPAD, R	1984Be68
					+ 1.32(12)	<sup>138</sup> <sub>58</sub> Ce 3538	TDPAD, TF	1980Go14 1983Da29 1986Da22 1983Da29
					$Q/Q(^{138}_{58}\text{Ce } 3538)$ $= 1.71(16)$			
<sup>135</sup> <sub>58</sub> Ce	3719	5.5 ps	10 <sup>+</sup>	−3(3)			IMPAD	1982Ze04
	2126	8.2 ns	19/2 <sup>+</sup>	−0.66(10)			IPAD	1982Ze01
<sup>136</sup> <sub>58</sub> Ce	3095	2.2 μs	10 <sup>+</sup>	−1.80(2) −1.80(3)			TDPAD TDPAD	1980Ba68 1982Ri09
					$Q/Q(^{138}_{58}\text{Ce } 3538)$ $= 1.45(14)$		TDPAD	1983Da29
<sup>137</sup> <sub>58</sub> Ce	0	9.0 h	3/2 <sup>+</sup>	0.96(4) 0.90(15) 1.01(4)			NMR/ON NO/S NMR/ON	1991Mu06 1963Ha07 1991Mu06
	254	34.4 h	11/2 <sup>−</sup>	0.70(3) 0.96(9)			NO/S NO/S	1966Bl17 1961Ha05
<sup>138</sup> <sub>58</sub> Ce	3538	82 ns	10 <sup>+</sup>	−1.70(3) −1.76(10)			TDPAD TDPAD	1980Ba68 1980Me11
<sup>139</sup> <sub>58</sub> Ce	0	137.6 d	3/2 <sup>+</sup>	1.06(4) 1.0(2) 0.85(15)			NMR/ON NO/S NO/S	1991Mu06 1963Ha07 1962Gr17

Table 1 (continued)

Nucleus	$E$ (level)	$\tau_{1/2}$	$I^\pi$	$\mu$ (nm) <sup>*</sup>	$Q$ (b)	Ref. Std.	Method	Reference
<sup>140</sup> <sub>58</sub> Ce	2632	70 ns	19/2 <sup>−</sup>	+3.99(6)	0.35(7) st	<sup>139</sup> <sub>57</sub> La <sup>139</sup> <sub>58</sub> Ce 2632	TDPAD	1980Ba68
				+3.85(8)			TDPAD	1984Vo12
	1596	90 fs	2 <sup>+</sup>	+1.9(2)			TF	1991Ba38
	2084	3.4 ns	4 <sup>+</sup>	4.06(15)			TDPAC, IPAC	1965Le16
				3.8(4)			TDPAC	1964Sc16
				4.44(16)			TDPAC	1963Ko07
				4.6(3)			TDPAC	1963Ka03
<sup>141</sup> <sub>58</sub> Ce	3715	23 ns	10 <sup>+</sup>	+10.3(4)	−0.16(5) or −0.37(5)	<sup>139</sup> <sub>58</sub> Ce 2632	TDPAC	1973K199
	0	32.5 d	7/2 <sup>−</sup>	1.09(4)			TDPAD	1988Ka04
				0.89(1)			NMR/ON	1983Va36
				0.89(9)			EPR	1957Ke13
				1.3(2)			NO/S	1962Gr17
<sup>142</sup> <sub>58</sub> Ce	641	5.7 ps	2 <sup>+</sup>	+0.42(10)	−0.16(5) or −0.37(5)		NO/S	1963Ha07
							TF	1991Ba38
<sup>143</sup> <sub>58</sub> Ce							CER	1988Ve08
								1989Sp07
	0	33 h	3/2 <sup>−</sup>	0.43(1)			NMR/ON	2002Ta01
<sup>146</sup> <sub>58</sub> Ce				1.0(3)			NO/S	1963Ha07
	259	0.25 ns	2 <sup>+</sup>	0.48(10)			IPAC	1986Gi05
<sup>148</sup> <sub>58</sub> Ce				+0.9(7)		<sup>148</sup> <sub>58</sub> Ce 158	IMPAC	1999Sm05
	158	1.01 ns	2 <sup>+</sup>	0.74(12)			IPAC	1986Gi05
<sup>150</sup> <sub>58</sub> Ce	306	(0.18) ns	4 <sup>+</sup>	+3.2(16)		<sup>148</sup> <sub>58</sub> Ce 158	IMPAC	1999Sm05
<sup>136</sup> <sub>59</sub> Pr	595	90 ns	6 <sup>+</sup>	+3.42(11)			TDPAD	1993Ba42
<sup>139</sup> <sub>59</sub> Pr	822	45 ns	11/2 <sup>−</sup>	+6.6(5)			TDPAD	1979Ke07
<sup>141</sup> <sub>59</sub> Pr				+7.2(6)	−0.077(6) st −0.059(4)	<sup>19</sup> F	TDPAD	1982Ri09
	0	Stable	5/2 <sup>+</sup>	+4.2754(5)			OD	1982Ma31
								1984Ma12
							R	1994Ii01
							AB	
<sup>142</sup> <sub>59</sub> Pr	145	1.85 ns	7/2 <sup>+</sup>	+2.95(9)	+0.030(9)	<sup>141</sup> <sub>59</sub> Pr	ME, R	1976St73
	1118	4.6 ns	11/2 <sup>−</sup>	+6.2(4)			TDPAD	1984Go12
				+7.2(4)			TDPAD	1974Ej01
	1797	1.0 ns	15/2 <sup>+</sup>	+8(2)			IPAD	1984Go12
	0	19.2 h	2 <sup>−</sup>	+0.234(1)			AB, R	1973AnZO
<sup>143</sup> <sub>59</sub> Pr					+0.77(16) st	<sup>141</sup> <sub>59</sub> Pr <sup>141</sup> <sub>59</sub> Pr	AB	1970HiZW
	4	14.6 m	5 <sup>−</sup>	2.2(1)			AB	1962Ca10
	0	13.57 d	7/2 <sup>+</sup>	+2.701(4)			CFBLS	1973AnZO
<sup>144</sup> <sub>59</sub> Pr							CFBLS	1994Ii01
	57	4.2 ns	5/2 <sup>+</sup>	+3.4(1)			CFBLS	1994Ii01
	80	0.12 ns	1 <sup>−</sup>	−1.2(4)			TDPAC	1977Ne12
<sup>133</sup> <sub>60</sub> Nd	SD band	—	37/2 <sup>+</sup> to 45/2 <sup>+</sup>	$g(\text{average})$ = 0.31(8)			IPAC	1975Ba32
<sup>134</sup> <sub>60</sub> Nd	295	64 ps	2 <sup>+</sup>	+1.2(4)		<sup>146</sup> <sub>60</sub> Nd 454	TF	1995Me08
<sup>135</sup> <sub>60</sub> Nd	2817	9.0 ps	10 <sup>+</sup>	~0	+1.9(5) st	<sup>143</sup> <sub>60</sub> Nd <sup>143</sup> <sub>60</sub> Nd	IMPAD	1987Bi13
	0	12.4 m	9/2 <sup>−</sup>	−0.78(3)			IPAD	1989OgZY
<sup>136</sup> <sub>60</sub> Nd						<sup>143</sup> <sub>60</sub> Nd <sup>146</sup> <sub>60</sub> Nd 454 <sup>146</sup> <sub>60</sub> Nd 454 <sup>146</sup> <sub>60</sub> Nd 454	LRIMS	1992Le09
	199	35 ps	11/2 <sup>−</sup>	−0.5(3)			LRIMS	1992Le09
	3298	51.3 ps	10 <sup>+</sup>	+11(4)			IMPAD	1987Bi13
	3688	18.7 ps	12 <sup>+</sup>	+14(5)			IMPAD	1987Bi13
<sup>137</sup> <sub>60</sub> Nd	0	38 m	1/2 <sup>+</sup>	−0.633(5)		<sup>146</sup> <sub>60</sub> Nd 454	IMPAD	1987Bi13
<sup>138</sup> <sub>60</sub> Nd	3172	330 ns	10 <sup>+</sup>	−1.74(4)		<sup>143</sup> <sub>60</sub> Nd	LRIMS	1992Le09
<sup>139</sup> <sub>60</sub> Nd	0	30 m	3/2 <sup>+</sup>	+0.907(7)		<sup>143</sup> <sub>60</sub> Nd	LRIMS	1992Le09
<sup>140</sup> <sub>60</sub> Nd					+0.28(9) st	<sup>143</sup> <sub>60</sub> Nd <sup>143</sup> <sub>60</sub> Nd	LRIMS	1992Le09
	3622	22 ns	10 <sup>+</sup>	−1.92(12)			LRIMS	1992Le09
				−1.6(2)			TDPAD	1980Me11
<sup>141</sup> <sub>60</sub> Nd					+0.32(13) st	<sup>143</sup> <sub>60</sub> Nd <sup>143</sup> <sub>60</sub> Nd	TDPAD	1982SiZP
	0	2.49 h	3/2 <sup>+</sup>	+1.012(9)			LRIMS	1992Le09
							LRIMS	1992Le09
<sup>142</sup> <sub>60</sub> Nd	1576	110 fs	2 <sup>+</sup>	+1.69(15)		<sup>143</sup> <sub>60</sub> Nd	TF	1991Ba38
<sup>143</sup> <sub>60</sub> Nd	0	Stable	7/2 <sup>−</sup>	−1.065(5)			AB/D	1965Sm04
					−0.61(2) st −0.59(3) st −0.56(6) st −0.48(2)		ABLS	1992Au04
							AB, R	1992Le09
							AB	1972Ch54
							AB	

(continued on next page)

Table 1 (continued)

Nucleus	$E$ (level)	$\tau_{1/2}$	$I^\pi$	$\mu$ (nm) <sup>*</sup>	$Q$ (b)	Ref. Std.	Method	Reference
<sup>144</sup> <sub>60</sub> Nd	1229	6.79 ns	13/2 <sup>+</sup>	+0.38(3) p			IPAD	1994KA23
	2911	482 ps	21/2 <sup>+</sup>	+7.2(13) p			IPAD	1994KA23
	697	3.1 ps	2 <sup>+</sup>	+0.418(14)			TF	2001Ho02
				+0.32(4)			TF	1990St18
				+0.33(8)		<sup>152</sup> Sm 122	TF	1987Be08
				+0.30(4)		<sup>148</sup> Nd 302	TF/IMPAC, R	1978Ka36
<sup>145</sup> <sub>60</sub> Nd					−0.15(6) or −0.28(6)		CER	1989Sp07
					−0.18(12)		CER	1971Cr01
								1970Ge08
	1314	7.4 ps	4 <sup>+</sup>	+0.52(14)			TF	2001Ho02
				+0.8(8)			IPAC	1967Jo11
	1791	(Est 40 ps)	6 <sup>+</sup>	−3.4(13)			TF	2001Ho02
<sup>146</sup> <sub>60</sub> Nd	0	Stable	7/2 <sup>−</sup>	−0.656(4)			AB/D	1965Sm04
					−0.314(12) st		ABLS	1992Au04
					−0.29(3) st		AB	1972Ch54
					−0.253(10)		AB	1965Sm04
	73	0.72 ns	5/2 <sup>−</sup>	−0.320(4)		<sup>145</sup> Nd	ME	1970Ka36
	454	21.6 ps	2 <sup>+</sup>	+0.578(16)			TF	2001Ho02
<sup>147</sup> <sub>60</sub> Nd				0.60(4)			TF	1999BeZR
				0.58(2)			TF	1990St18
				+0.63(10)		<sup>152</sup> Sm 122	TF	1987Be08
				+0.50(8)		<sup>148</sup> Nd 302	TF/IMPAC, R	1978Ka36
					−0.78(9)		CER	1970Ge08
	1043	4 ps	4 <sup>+</sup>	+0.77(10)			TF	2001Ho02
<sup>148</sup> <sub>60</sub> Nd	0	11.0 d	5/2 <sup>−</sup>	0.578(3)		<sup>143</sup> Nd	EPR	1957Ke13
				0.554(10)		<sup>145</sup> Nd	AB	1970PiZR
					0.9(3)	<sup>145</sup> Nd	AB	1970PiZR
	302	78 ps	2 <sup>+</sup>	+0.73(3)			TF	2001Ho02
				0.70(4)			TF	1990St18
				+0.83(9)		<sup>152</sup> Sm 122	TF	1987Be08
<sup>149</sup> <sub>60</sub> Nd				+0.64(8)			TF, IMPAC,	1978Ka36
							CEAD, R	
					−1.46(13)		CER	1970Ge08
	752	7.0 ps	4 <sup>+</sup>	+1.4(2)			TF	2001Ho02
	1280	(Est 4.6 ps)	6 <sup>+</sup>	+1.6(3)			TF	2001Ho02
	3621	330 ns	10 <sup>+</sup>	−1.75(9)			TDPAD	1989Ra99
<sup>150</sup> <sub>60</sub> Nd	0	1.73 h	5/2 <sup>−</sup>	0.351(10)		<sup>145</sup> Nd	AB	1970PiZR
					1.3(3)	<sup>145</sup> Nd	AB	1970PiZR
	130	1492 ps	2 <sup>+</sup>	0.9(2)			TF	1999BeZR
				0.76(10)			TF	1990St18
				+0.84(8)		<sup>152</sup> Sm 122	TF	1987Be08
				0.64(2)			RIGV	1970Be36
<sup>138</sup> <sub>61</sub> Pm					−2.0(5)		CER, R	1970Ge08
	381	63 ps	4 <sup>+</sup>	+1.8(3)			TF	2001Ho02
				1.76(16)			TF	1990St18
				+1.3(2)			IMPAC	1972Ku10
	720	12 ps	6 <sup>+</sup>	+2.1(4)			TF	2001Ho02
	1130	4 ps	8 <sup>+</sup>	+4.5(10)			TF	2001Ho02
<sup>143</sup> <sub>61</sub> Pm	1599	(Est 3.6 ps)	10 <sup>+</sup>	+1(2)			TF	2001Ho02
	0	3.5 m	(3 <sup>+</sup> )	3.2(9)			NO/S	1992Si22
	0	265 d	5/2 <sup>+</sup>	3.8(5)			NO/S	1963Gr10
	960	22 ns	11/2 <sup>−</sup>	+6.8(4)			TDPAD	1984Go12
				+6.3(5)		<sup>19</sup> F 197	TDPAD	1980Pr02
				+7.7(4)			TDPAD	1984Go12
<sup>144</sup> <sub>61</sub> Pm				+7.5(5)		<sup>19</sup> F 197	TDPAD	1980Pr02
	0	349 d	5 <sup>−</sup>	1.69(14)			NO/S	1961Sh02
	0	17.7 y	5/2 <sup>+</sup>	+3.80(16)		<sup>147</sup> Pr	CFBLS	1992Al03
					+0.21(8)	<sup>147</sup> Pr	CFBLS	1992Al03
	0	2.623 y	7/2 <sup>+</sup>	+2.58(7)			O	1966Re04
					+0.7(2)		O	1966Re04
<sup>147</sup> <sub>61</sub> Pm					0.59(16)		AB, R	1966Re04
	91	2.5 ns	5/2 <sup>+</sup>	+3.22(16)		<sup>147</sup> Pr	ME	1970Ba39
				3.55(10)		<sup>147</sup> Pr	ME	1970Ba39
	0	5.37 d	1 <sup>−</sup>	+2.1(2)			AB	1965Al10

Table 1 (continued)

Nucleus	$E$ (level)	$\tau_{1/2}$	$I^\pi$	$\mu$ (nm) <sup>*</sup>	$Q$ (b)	Ref. Std.	Method	Reference
				1.8(2)			NO/S	1963Gr10
					+0.2(2)		AB	1965Al10
<sup>149</sup> <sub>61</sub> Pm	137	41.3 d	6 <sup>−</sup>	1.8(2)			NO/S	1963Gr10
	0	53.1 h	7/2 <sup>+</sup>	3.3(5)			NO/S	1960Ch15
								1963Gr10
	114	2.54 ns	5/2 <sup>+</sup>	+2.13(15)			IPAC	1989Ra17
				2.0(2)			TDPAC	1970Se11
	189	3.24 ns	3/2 <sup>+</sup>	+1.09(15)			IPAC	1989Ra17
				2.3(6)			TDPAC	1970Se11
	211	80 ps	5/2 <sup>+</sup>	+2.2(4)			IPAC	1989Ra17
	270	2.64 ns	7/2 <sup>−</sup>	+2.19(11)			IPAC	1989Ra17
				3.6(2)			TDPAC	1970Se11
<sup>151</sup> <sub>61</sub> Pm	0	28.4 h	5/2 <sup>+</sup>	1.8(2)			AB	1963Bu14
					1.9(3)		AB	1963Bu14
	256	0.90 ns	3/2 <sup>+</sup>	1.8(2)			IPAC	1977Se06
<sup>138</sup> <sub>62</sub> Sm	2903	0.55 ns	10 <sup>+</sup>	~10			IPAD	1989OgZY
<sup>139</sup> <sub>62</sub> Sm	0	2.57 m	1/2 <sup>+</sup>	−0.53(2)		<sup>145,7,9</sup> <sub>62</sub> Sm	LRIMS	1992Le09
	457	10.7 s	11/2 <sup>−</sup>	1.1(2)		<sup>141</sup> <sub>62</sub> Sm 176	NO/S	1992Si22
<sup>140</sup> <sub>62</sub> Sm	3172	19.4 ns	10 <sup>+</sup>	−1.8(2)			TDPAD	1988Ba22
					1.7(5)	<sup>154</sup> <sub>62</sub> Sm 82	TDPAD	1985Be23
	3210	5.2 ns	10 <sup>+</sup>	+12.7(9)			TDPAD	1988Ba22
<sup>141</sup> <sub>62</sub> Sm	0	10.2 m	1/2 <sup>+</sup>	−0.74(2)		<sup>145,7,9</sup> <sub>62</sub> Sm	LRIMS	1992Le09
	176	22.6 m	11/2 <sup>−</sup>	−0.84(2)		<sup>145,7,9</sup> <sub>62</sub> Sm	LRIMS	1992Le09
					+1.6(5) st	<sup>145,7,9</sup> <sub>62</sub> Sm	LRIMS	1992Le09
<sup>142</sup> <sub>62</sub> Sm	2372	170 ns	7 <sup>−</sup>		+1.1(3)	<sup>154</sup> <sub>62</sub> Sm 82	TDPAD, TF	1985Be23
								1986Da22
<sup>143</sup> <sub>62</sub> Sm	0	8.83 m	3/2 <sup>+</sup>	+1.01(2)		<sup>145,7,9</sup> <sub>62</sub> Sm	LRIMS	1992Le09
					+0.4(2)	<sup>145,7,9</sup> <sub>62</sub> Sm	LRIMS	1992Le09
<sup>144</sup> <sub>62</sub> Sm	1660	85 fs	2 <sup>+</sup>	+1.5(2)			TF	1991Ba38
	1810	25 ps	3 <sup>−</sup>	+2.3(3)		<sup>148</sup> <sub>62</sub> Sm 550	TF	1990Ba41
<sup>145</sup> <sub>62</sub> Sm	0	340 d	7/2 <sup>−</sup>	−1.11(6)		<sup>147,9</sup> <sub>62</sub> Sm	LRIMS	1992Le09
				−1.123(11)		<sup>147</sup> <sub>62</sub> Sm	LRFS	1990En01
				0.92(6)		<sup>147</sup> <sub>62</sub> Sm	NO/S	1969Ka21
					−0.6(2)	<sup>147,9</sup> <sub>62</sub> Sm	LRIMS	1992Le09
					−0.60(7)	<sup>147</sup> <sub>62</sub> Sm	LRFS	1990En01
<sup>147</sup> <sub>62</sub> Sm	0	1.1 × 10 <sup>11</sup> y	7/2 <sup>−</sup>	−0.812(2)			LRFS	1990En01
				−0.8148(7)			AB	1966Wo05
					−0.27(3)		LRFS	1990En01
					−0.261(7)		AB, R	1992Le09
								1972Ch55
					−0.26(3) a		Mu-X	1981Ba28
					$Q/Q_{\text{ref}} = -3.4601(6)$	<sup>149</sup> <sub>62</sub> Sm	AB	1972Ch55
	121	0.78 ns	5/2 <sup>−</sup>	−0.45(3)		<sup>147,9</sup> <sub>62</sub> Sm	ME	1971Pa04
					−0.5(2)	<sup>147</sup> <sub>62</sub> Sm	ME	1971Pa04
<sup>148</sup> <sub>62</sub> Sm	197	1.35 ns	3/2 <sup>−</sup>	−0.27(6)			IPAC	1989Ra17
	550	7.3 ps	2 <sup>+</sup>	+0.51(4)		<sup>150</sup> <sub>62</sub> Sm 334	TF	1987Ba65
				+0.61(7)		<sup>152</sup> <sub>62</sub> Sm 122	TF	1987Be08
					−1.0(3)		CER	1973Cl99
<sup>149</sup> <sub>62</sub> Sm	0	>2 × 10 <sup>15</sup> y	7/2 <sup>−</sup>	−0.6677(11)		<sup>147</sup> <sub>62</sub> Sm	LRFS	1990En01
				−0.6717(7)		<sup>147</sup> <sub>62</sub> Sm	AB	1966Wo05
				−0.6708(10)		<sup>147</sup> <sub>62</sub> Sm	CFBLS	1985Al06
								1986Al33
					+0.078(8)	<sup>147</sup> <sub>62</sub> Sm	LRFS	1990En01
					+0.075(2)		AB, R	1992Le09
								1972Ch55
					+0.075(8)	<sup>147</sup> <sub>62</sub> Sm	AB	1966Wo05
					+0.07(2)	<sup>147</sup> <sub>62</sub> Sm	CFBLS	1985Al06
								1986Al33
					0.09(2) a		Mu-X	1981Ba28
	23	7.6 ns	5/2 <sup>−</sup>	−0.6238(8)		<sup>149</sup> <sub>62</sub> Sm	ME	1970EiZY
					+1.01(9) a		Mu-X	1981Ba28
<sup>150</sup> <sub>62</sub> Sm	334	49 ps	2 <sup>+</sup>	+0.77(5)		<sup>152</sup> <sub>62</sub> Sm 122	TF	1987Be08
				+0.82(6)		<sup>152</sup> <sub>62</sub> Sm 122	TF	1987By02

(continued on next page)

Table 1 (continued)

Nucleus	$E$ (level)	$\tau_{1/2}$	$I^\pi$	$\mu$ (nm) <sup>*</sup>	$Q$ (b)	Ref. Std.	Method	Reference
<sup>151</sup> <sub>62</sub> Sm	773	6.6 ps	4 <sup>+</sup>	+2.6(3) +1.4(2) +0.7(2) +0.83(14) +2.6(8) +2.3(5)	−1.3(2)	<sup>152</sup> <sub>62</sub> Sm 122	CER	1973Cl**
					−1.3(2)		CERP	1973Gr06
						<sup>150</sup> <sub>62</sub> Sm 334	TF	1993Va10
						<sup>152</sup> <sub>62</sub> Sm 122	TF	1987By02
						<sup>152</sup> <sub>62</sub> Sm 122	TF	1987By02
	1046	0.73 ps	2 <sup>+</sup>			<sup>152</sup> <sub>62</sub> Sm 122	TF	1987By02
	1194	1.27 ps	2 <sup>+</sup>			<sup>152</sup> <sub>62</sub> Sm 122	TF	1987By02
	1279	(1.4 ps)	6 <sup>+</sup>			<sup>150</sup> <sub>62</sub> Sm 334	TF	1993Va10
	0	90 y	5/2 <sup>−</sup>	−0.3611(13) −0.363(2)  0.368(3) −0.3630(5)		<sup>152</sup> <sub>62</sub> Sm 122	TF	1987By02
						<sup>147</sup> <sub>62</sub> Sm	LRFS	1990En01
						<sup>147</sup> <sub>62</sub> Sm	CFBLS	1985Al06
								1986Al33
						<sup>147</sup> <sub>62</sub> Sm	CFBLS	1985Dy01
						<sup>147</sup> <sub>62</sub> Sm	CFBLS	1981Do07
					+0.71(7)	<sup>147</sup> <sub>62</sub> Sm	LRFS	1990En01
					+0.65(15)	<sup>147</sup> <sub>62</sub> Sm	CFBLS	1985Al06
								1986Al33
					0.67(7)	<sup>147</sup> <sub>62</sub> Sm	CFBLS	1985Dy01
					+0.67(7)	<sup>147</sup> <sub>62</sub> Sm	CFBLS	1981Do07
<sup>152</sup> <sub>62</sub> Sm	92	77 ns	9/2 <sup>+</sup>	−0.95(5)			TDPAC	1974Dr03
	105	0.48 ns	3/2 <sup>−</sup>	+0.31(11)			IPAC	1971Be23
	168	0.38 ns	5/2 <sup>+</sup>	+1.8(5)			IPAC, R	1974Dr03
	122	1.40 ns	2 <sup>+</sup>	+0.80(6) +0.84(5)			IPAC	1992De29
	366	56.6 ps	4 <sup>+</sup>	+1.7(2) +1.22(15) +2.4(3) +0.8(2) +0.8(2)		<sup>149</sup> <sub>62</sub> Sm	ME	1967At04
					−1.666(16) a		Mu-X	1979Po05
					−1.702(17) a		Mu-X	1978Ya11
						<sup>152</sup> <sub>62</sub> Sm 122	TF	1987By02
							IMPAC	1972Ku10
	707	10.1 ps	6 <sup>+</sup>			<sup>152</sup> <sub>62</sub> Sm 122	TF	1987By02
	810	7.2 ps	2 <sup>+</sup>			<sup>152</sup> <sub>62</sub> Sm 122	TF	1987By02
	1086	0.85 ps	2 <sup>+</sup>			<sup>152</sup> <sub>62</sub> Sm 122	TF	1987By02
	1125	3.3 ps	8 <sup>+</sup>			<sup>152</sup> <sub>62</sub> Sm 122	TF	1987By02
	1609	1.38 ps	10 <sup>+</sup>			<sup>152</sup> <sub>62</sub> Sm 122	TF	1987By02
	gsb		<10 <sup>+</sup>	$g(0) = +0.38(3)$ $\alpha \times 10^3 = 0.4(2)$			TF	1982An10
<sup>153</sup> <sub>62</sub> Sm	0	46.8 h	3/2 <sup>+</sup>	−0.021(3) −0.0257(14) −0.0216(1)		<sup>147</sup> <sub>62</sub> Sm	LRFS	1990En01
						<sup>147</sup> <sub>62</sub> Sm	ABLFS	1984Ea02
							AB	1976Fu06
<sup>154</sup> <sub>62</sub> Sm	82	3.01 ns	2 <sup>+</sup>	+0.78(4)	+1.30(12)	<sup>147</sup> <sub>62</sub> Sm	LRFS	1990En01
					+1.26(13)	<sup>147</sup> <sub>62</sub> Sm	ABLFS	1984Ea02
						<sup>147</sup> <sub>62</sub> Sm	ME	1969Wh04
					−1.87(4) a		Mu-X	1979Po05
							IMPAC	1972Ku10
<sup>155</sup> <sub>62</sub> Sm	267	165 ps	4 <sup>+</sup>	+1.35(15) +1.9(3) $g(0) = +0.39(3)$ $\alpha \times 10^3 = -1.3(15)$			IMPAC	1972Ku10
							IMPAC	1972Ku10
							TF	1982An10
<sup>138</sup> <sub>63</sub> Eu	0	12.1 s	(6 <sup>−</sup> )	5.3(7)		<sup>153</sup> <sub>63</sub> Eu	AB	1976Fu06
<sup>139</sup> <sub>63</sub> Eu	0	17.9 s	(11/2 <sup>−</sup> )	6.1(8)		<sup>142</sup> <sub>63</sub> Eu	NO/S	1992Si22
<sup>140</sup> <sub>63</sub> Eu	0 + $x$	1.54 s	1 <sup>(+)</sup>	+1.365(13)		<sup>142</sup> <sub>63</sub> Eu	NO/S	1992Si22
<sup>141</sup> <sub>63</sub> Eu	0	40 s	5/2 <sup>+</sup>	+3.494(8)	+0.31(4)	<sup>151</sup> <sub>63</sub> Eu	CFBLS	1985Ah02
						<sup>153</sup> <sub>63</sub> Eu	CFBLS	1985Ah02
						<sup>151</sup> <sub>63</sub> Eu	CFBLS	1985Ah02
<sup>142</sup> <sub>63</sub> Eu	0	2.4 s	1 <sup>+</sup>	+1.54(2)	+0.85(4)	<sup>153</sup> <sub>63</sub> Eu	CFBLS	1985Ah02
						<sup>151</sup> <sub>63</sub> Eu	CFBLS	1985Ah02
						<sup>153</sup> <sub>63</sub> Eu	CFBLS	1985Ah02
					+0.12(5)	<sup>151</sup> <sub>63</sub> Eu	CFBLS	1985Ah02
						<sup>151</sup> <sub>63</sub> Eu	CFBLS	1985Ah02
<sup>143</sup> <sub>63</sub> Eu	180	73 s	8 <sup>−</sup>	+2.978(11)	+1.41(6)	<sup>153</sup> <sub>63</sub> Eu	CFBLS	1985Ah02
						<sup>151</sup> <sub>63</sub> Eu	CFBLS	1985Ah02
						<sup>153</sup> <sub>63</sub> Eu	CFBLS	1985Ah02
						<sup>151</sup> <sub>63</sub> Eu	CFBLS	1985Ah02
						<sup>153</sup> <sub>63</sub> Eu	CFBLS	1985Ah02
<sup>144</sup> <sub>63</sub> Eu	282 + $x$	6.2 ns	8 <sup>+</sup>	(+)4.1(2)		<sup>151</sup> <sub>63</sub> Eu	TDPAD	1993Bi13
						<sup>153</sup> <sub>63</sub> Eu	CFBLS	1985Ah02
						<sup>151</sup> <sub>63</sub> Eu	CFBLS	1985Ah02
<sup>145</sup> <sub>63</sub> Eu	0	10 s	1 <sup>+</sup>	+1.893(13)	+0.51(3)	<sup>153</sup> <sub>63</sub> Eu	CFBLS	1985Ah02
						<sup>151</sup> <sub>63</sub> Eu	CFBLS	1985Ah02
					+0.10(3)	<sup>153</sup> <sub>63</sub> Eu	CFBLS	1985Ah02
<sup>145</sup> <sub>63</sub> Eu	0	5.93 d	5/2 <sup>+</sup>	+3.999(3) +3.993(7) 3.2(5)		<sup>151</sup> <sub>63</sub> Eu	CFBLS	1993HuZU
						<sup>151</sup> <sub>63</sub> Eu	CFBLS	1985Ah02
						<sup>151</sup> <sub>63</sub> Eu	NO/S	1983Kr18



Table 1 (continued)

Nucleus	$E$ (level)	$\tau_{1/2}$	$I^\pi$	$\mu$ (nm) <sup>*</sup>	$Q$ (b)	Ref. Std.	Method	Reference
<sup>146</sup> <sub>63</sub> Eu	716 0	0.49 $\mu$ s 4.59 d	11/2 <sup>-</sup> 4 <sup>-</sup>	+7.46(4) +1.421(8) +1.425(11) 1.3(2) 1.7(3)	$Q/Q(^{53}\text{Eu}) = 0.1168(9)$ +0.29(2)	<sup>151</sup> <sub>63</sub> Eu	CFBLS	1993HuZU
						<sup>151</sup> <sub>63</sub> Eu	CFBLS	1985Ah02
						<sup>19</sup> F 197	TDPAD	1980K107
						<sup>151</sup> <sub>63</sub> Eu	CFBLS	1993HuZU
						<sup>151</sup> <sub>63</sub> Eu	CFBLS	1985Ah02
							NO/S	1985Va21
							NO/S	1983Kr18
<sup>147</sup> <sub>63</sub> Eu	0	24.1 d	5/2 <sup>+</sup>	+3.736(6) +3.725(7) +3.724(8) 4.0(9) 3.1(4) 3.7(5)	$Q/Q(^{53}\text{Eu}) = -0.074(2)$ -0.18(6)	<sup>151</sup> <sub>63</sub> Eu	CFBLS	1993HuZU
						<sup>151</sup> <sub>63</sub> Eu	CFBLS	1985Ah02
						<sup>151</sup> <sub>63</sub> Eu	CFBLS	1993HuZU
						<sup>151</sup> <sub>63</sub> Eu	CFBLS	1986Al33
						<sup>151</sup> <sub>63</sub> Eu	CFBLS	1985Ah02
							NO/S	1985Va21
							NO/S	1983Kr18
							NO/S	1979Er13
						<sup>153</sup> <sub>63</sub> Eu	CFBLS	1993HuZU
						<sup>151</sup> <sub>63</sub> Eu	CFBLS	1986Al33
<sup>148</sup> <sub>63</sub> Eu	635 0	765 ns 54.5 d	11/2 <sup>-</sup> 5 <sup>-</sup>	+7.05(3) +7.04(6) +2.340(10) 2.2(4) 2.1(3)	$Q/Q(^{53}\text{Eu}) = 0.218(2)$ +0.49(3) +0.55(3)	<sup>151</sup> <sub>63</sub> Eu	CFBLS	1985Ah02
							TDPAD	1980Ba67
						<sup>19</sup> F 197	TDPAD	1980K107
						<sup>151</sup> <sub>63</sub> Eu	CFBLS	1985Ah02
							NO/S	1985Va21
							NO/S	1983Kr18
						<sup>151</sup> <sub>63</sub> Eu	CFBLS	1985Ah02
							TDPAD	1980Ba67
<sup>149</sup> <sub>63</sub> Eu	720 0	235 ns 93.1 d	9 <sup>+</sup> 5/2 <sup>+</sup>	+6.12(5) +3.576(10) +3.565(6) 2.5(5)	+0.35(6)	<sup>151</sup> <sub>63</sub> Eu	CFBLS	1985Ah02
							TDPAD	1980Ba67
						<sup>151</sup> <sub>63</sub> Eu	CFBLS	1986Al33
						<sup>151</sup> <sub>63</sub> Eu	CFBLS	1985Ah02
<sup>150</sup> <sub>63</sub> Eu	497 0	2.43 $\mu$ s 35.8 y	11/2 <sup>-</sup> 5 <sup>(-)</sup>	+7.0(3) +2.708(11)	+0.70(8) +0.75(2)	<sup>151</sup> <sub>63</sub> Eu	CFBLS	1986Al33
						<sup>151</sup> <sub>63</sub> Eu	CFBLS	1985Ah02
						<sup>19</sup> F 197	TDPAD	1980K107
						<sup>151</sup> <sub>63</sub> Eu	CFBLS	1985Ah02
<sup>151</sup> <sub>63</sub> Eu	0	Stable	5/2 <sup>+</sup>	+3.4717(6)	+1.13(5)	<sup>151</sup> <sub>63</sub> Eu	CFBLS	1985Ah02
							AB/D	1965Ev08
						<sup>153</sup> <sub>63</sub> Eu	CFBLS	1993HuZU
						<sup>153</sup> <sub>63</sub> Eu	CFBLS	1993Mo04
						<sup>153</sup> <sub>63</sub> Eu	O	1965Wi09
							ABLDF	1987Se12
						<sup>153</sup> <sub>63</sub> Eu	CFBLS	1985Ah02
							Mu-X, O	1984Ta04
								1965Wi09
							ABLFS	1981Br17
<sup>152</sup> <sub>63</sub> Eu	22 0	9.5 ns 13.54 y	7/2 <sup>+</sup> 3 <sup>-</sup>	+2.591(2) -1.9401(8) -1.950(12) -1.96(6) -1.9414(13)	1.53(5) 1.32(13) 1.28(2) a +1.19(2)	<sup>151</sup> <sub>63</sub> Eu	CFBLS	1981Ar25
							ME	1972Cr09
							Mu-X	1984Ta05
						<sup>151</sup> <sub>63</sub> Eu	ME, R	1976St73
						<sup>151</sup> <sub>63</sub> Eu	CFBLS	1993HuZU
						<sup>151</sup> <sub>63</sub> Eu	CFBLS	1986Al33
						<sup>151</sup> <sub>63</sub> Eu	CFBLS	1985Ah02
						<sup>151</sup> <sub>63</sub> Eu	AB, O, R	1963Al06
								1970He09
								1971He18
<sup>153</sup> <sub>63</sub> Eu	0	Stable	5/2 <sup>+</sup>	+1.5324(3) +1.56(4) +1.538(13) +1.5330(8)	$Q/Q_{\text{ref}} = 1.1822(5)$ +2.71(3) +2.5(2) 2.22 e, st +2.28(9) +2.41(2) a	<sup>153</sup> <sub>63</sub> Eu	CFBLS	1993HuZU
						<sup>151</sup> <sub>63</sub> Eu	CFBLS	1986Al33
						<sup>151</sup> <sub>63</sub> Eu	CFBLS	1985Ah02
						<sup>151</sup> <sub>63</sub> Eu	CFBLS	1993HuZU
						<sup>151</sup> <sub>63</sub> Eu	CFBLS	1986Al33
						<sup>151</sup> <sub>63</sub> Eu	CFBLS	1985Ah02
							AB/D	1965Ev08
							ABLDF	1987Se12
						<sup>151</sup> <sub>63</sub> Eu	CFBLS	1986Al33
							Mu-X, O	1984Ta04

(continued on next page)

Table 1 (continued)

Nucleus	$E$ (level)	$\tau_{1/2}$	$I^\pi$	$\mu$ (nm) <sup>*</sup>	$Q$ (b)	Ref. Std.	Method	Reference					
<sup>154</sup> <sub>63</sub> Eu	83	0.80 ns	$7/2^+$	$+1.81(6)$	3.92(12)	<sup>153</sup> <sub>63</sub> Eu	ABLFS	1981Br17					
					3.6(4)		CFBLS	1981Ar25					
					0.44(2) a		ME	1969Ri02					
							Mu-X	1984Ta04					
							ME	1966At01					
	97	180 ps	$5/2^-$	$+3.2(2)$ or $-0.5(2)$	1.254(13)	<sup>153</sup> <sub>63</sub> Eu	ME, IPAC	1972Cr09					
	103	3.9 ns	$3/2^+$	$+2.048(6)$		<sup>153</sup> <sub>63</sub> Eu		1975Si07					
	0	8.6 y	$3^-$	$-2.005(6)$ $-2.02(5)$		<sup>153</sup> <sub>63</sub> Eu	ME	1973Ar19					
						<sup>153</sup> <sub>63</sub> Eu	EPR	1957Ab05					
						<sup>151</sup> <sub>63</sub> Eu	CFBLS	1986Al33					
					$+2.84(10)$	<sup>151</sup> <sub>63</sub> Eu	CFBLS	1986Al33					
					$+3.4(3)$	<sup>152</sup> <sub>63</sub> Eu	NO/S, O, R	1962Ju06					
								1970He09					
								1971He18					
								2000Ga35					
<sup>155</sup> <sub>63</sub> Eu	0	4.68 y	$5/2^+$	$+1.520(2)$ $+1.52(2)$ $1.519(10)$ $+1.56(10)$	$+2.49(2)$ $2.51(6)$ $+2.5(3)$ $+2.3(2)$	<sup>153</sup> <sub>63</sub> Eu <sup>151,3</sup> <sub>63</sub> Eu <sup>153</sup> <sub>63</sub> Eu <sup>151</sup> <sub>63</sub> Eu <sup>153</sup> <sub>63</sub> Eu <sup>153</sup> <sub>63</sub> Eu <sup>151,3</sup> <sub>63</sub> Eu <sup>151</sup> <sub>63</sub> Eu	ABLFS	1990Al34					
							CFBLS	1986Al33					
							ABLFS	1990Al34					
							CFBLS	2000Ga35					
							ABLFS	1999Ga36					
	104	0.104 ns	$5/2^-$	$+9.6(10)$ $+1.50(2)$	$+2.6(3)$	<sup>151,3</sup> <sub>63</sub> Eu <sup>151,3</sup> <sub>63</sub> Eu <sup>151,3</sup> <sub>63</sub> Eu <sup>151,3</sup> <sub>63</sub> Eu <sup>151</sup> <sub>63</sub> Eu	CFBLS	1990Al34					
							CFBLS	1990Al34					
							CFBLS	1990Al34					
							CFBLS	1990Al34					
							CFBLS	1986Al33					
0	15.2 h	$5/2^+$				IPAC	1971Be23						
<sup>157</sup> <sub>63</sub> Eu	0	45.9 m	$1^{(-)}$	$+1.44(2)$	$+0.66(14)$	<sup>151,3</sup> <sub>63</sub> Eu <sup>151,3</sup> <sub>63</sub> Eu <sup>151,3</sup> <sub>63</sub> Eu <sup>151,3</sup> <sub>63</sub> Eu <sup>151</sup> <sub>63</sub> Eu	CFBLS	1990Al34					
							CFBLS	1990Al34					
							CFBLS	1990Al34					
							CFBLS	1990Al34					
							CFBLS	1990Al34					
	0	18.1 m	$5/2^+$	$+1.38(2)$	$+2.7(3)$	<sup>151,3</sup> <sub>63</sub> Eu <sup>151,3</sup> <sub>63</sub> Eu	CFBLS	1990Al34					
							CFBLS	1990Al34					
							CFBLS	1990Al34					
							CFBLS	1990Al34					
							CFBLS	1990Al34					
<sup>144</sup> <sub>64</sub> Gd	3433	130 ns	$10^+$	$+12.76(14)$	$-1.46(6)$		TDPAD	1979Ha15					
							TDPAD, TFLD	1982Ha22					
								1985Da20					
								1985Da20					
								1985Da20					
	1580	1.1 ns	$3^-$	$+2.1(9)$			TDPAD	1979Ke03					
							2982	6.7 ns	$7^-$	$+9.0(2)$ $+8.3(4)$ $+7.9(6)$	TDPAD	1979Ha15	
										TDPAD	1979Ke03		
										TDPAD	1979Fa01		
										TDPAD	1979Ha15		
<sup>147</sup> <sub>64</sub> Gd	8916	4.1 ns	$(19^+)$	$+12(2)$	$-0.73(7)$		TDPAD	1979Ha15					
							0	38.1 h	$7/2^-$	$1.02(9)$ $1.2(2)$	NO/S	1987Kr11	
										NO/S	1986Va16		
							997	22.2 ns	$13/2^+$	$+0.49(2)$ $-0.24(7)$	TDPAD	1987Da27	
											TDPAD	1979Ha15	
	TDPAD, TFLD	1982Ha22											
	2760	4.4 ns	$21/2^+$	$+7.6(12)$			TDPAD	1979Ha15					
							3582	27 ns	$27/2^-$	$+11.3(2)$ $+11.9(3)$	TDPAD	1979Ha15	
										TDPAD	1979Fa01		
										TDPAD, TFLD	1982Ha22		
											1985Da20		
<sup>148</sup> <sub>64</sub> Gd	8587	510 ns	$49/2^+$	$+10.9(2)$	$-3.24(18)$		TDPAD	1979Ha15					
										TDPAD, TFLD	1982Ha22		
											1985Da20		
											1985Da20		
											1985Da20		
	10993	0.8 ns	$59/2^-$	$+11(2)$			TF	1989Ha15					
							2695	16.5 ns	$9^-$	$-0.16(2)$ $-0.25(8)$	TDPAD	1987Da27	
										TDPAD	1979Ha15		
										TDPAD	1982Ha22		
											1982Ha22		
<sup>149</sup> <sub>64</sub> Gd	0	9.4 d	$7/2^-$	$0.88(4)$ $0.97(6)$ $1.1(2)$	$1.01(5)$		NO/S	1987Kr11					
										NO/S	1987Be33		
										NO/S	1986Va16		
										IPAC, TDPAC	1977GrZF		
										IPAC, TDPAC	1977GrZF		
	<sup>151</sup> <sub>64</sub> Gd	165	1.7 ns	$5/2^-$	$-0.9(2)$			IPAC	1976Ba26				
								0	120 d	$7/2^-$	$0.77(6)$	IPAC	1977GrZF
								109	3.0 ns	$5/2^-$	$-1.08(13)$ $-1.2(2)$	IPAC	1977GrZF
												IPAC	1976Ba26
												IPAC	1977GrZF
<sup>152</sup> <sub>64</sub> Gd	395	0.31 ns	$3/2^-$	$-2.5(8)$	<sup>156</sup> <sub>64</sub> Gd 89		IPAC	1977GrZF					
	344	28.6 ps	$2^+$	$+0.96(8)$			RIGV, R	1974Ar23					

Table 1 (continued)

Nucleus	$E$ (level)	$\tau_{1/2}$	$I^\pi$	$\mu$ (nm) <sup>*</sup>	$Q$ (b)	Ref. Std.	Method	Reference
<sup>153</sup> <sub>64</sub> Gd	755	6.1 ps	4 <sup>+</sup>	+0.90(8)		<sup>152</sup> <sub>62</sub> Sm 122	TF	1987Be08
	0	241.6 d	3/2 <sup>−</sup>	(+) $2.0(5)$		<sup>152</sup> <sub>64</sub> Gd 344	TF	1999Ma06
	110	1.97 ns	5/2 <sup>−</sup>	0.38(8)			NO/S	198Va16
	129	2.50 ns	3/2 <sup>−</sup>	+0.40(15)			IPAC, TDPAC	1977GrZF
	123	1.17 ns	2 <sup>+</sup>	+0.37(7)			IPAC	1977Ba63
<sup>154</sup> <sub>64</sub> Gd				+0.96(6)		<sup>156</sup> <sub>64</sub> Gd 89	RIGV, R	1974Ar23
				+0.86(6)		<sup>156</sup> <sub>64</sub> Gd 89	TDPAC	1970Wa26
<sup>155</sup> <sub>64</sub> Gd	0	Stable	3/2 <sup>−</sup>	−0.2572(4)	−1.82(4) a		Mu-X	1983La08
				−0.2591(5)			ENDOR	1978Va24
							AB/D	1969Un02
					+1.27(5) st		ABLS	1990Ji06
					1.27(3) a		Mu-X	1983La08
					+1.30(2) a		Mu-X, AB	1982Ta01
	60	0.19 ns	5/2 <sup>−</sup>		−0.44(2) a		Mu-X	1983La08
	87	6.35 ns	5/2 <sup>+</sup>	−0.525(2)		<sup>155</sup> <sub>64</sub> Gd	ME	1978Co23
				−0.518(5)		<sup>155</sup> <sub>64</sub> Gd	ME	1977Va21
				−0.533(4)		<sup>155</sup> <sub>64</sub> Gd	ME	1973Ar03
					+0.13(3)	<sup>155</sup> <sub>64</sub> Gd	ME	1978Co23
					+0.111(7)	<sup>155</sup> <sub>64</sub> Gd	ME	1977Va21
					+0.113(8)	<sup>155</sup> <sub>64</sub> Gd	ME	1973Ar03
	105	1.18 ns	3/2 <sup>+</sup>	+0.143(5)		<sup>155</sup> <sub>64</sub> Gd	ME	1978Co23
					+0.96(3)	<sup>155</sup> <sub>64</sub> Gd	ME	1978Co23
					+1.30(4)	<sup>155</sup> <sub>64</sub> Gd	ME	1974Ar23
<sup>156</sup> <sub>64</sub> Gd	146	101 ps	7/2 <sup>−</sup>	+0.4(4)		<sup>156</sup> <sub>64</sub> Gd	TF	1998St28
	252	58 ps	9/2 <sup>−</sup>	+1.2(3)		<sup>156</sup> <sub>64</sub> Gd	TF	1998St28
	392	23 ps	11/2 <sup>−</sup>	+1.5(3)		<sup>156</sup> <sub>64</sub> Gd	TF	1998St28
	534	14.6 ps	13/2 <sup>−</sup>	+1.9(3)		<sup>156</sup> <sub>64</sub> Gd	TF	1998St28
	730	5.8 ps	15/2 <sup>−</sup>	+2.6(5)		<sup>156</sup> <sub>64</sub> Gd	TF	1998St28
	897	4.9 ps	17/2 <sup>−</sup>	+2.2(9)		<sup>156</sup> <sub>64</sub> Gd	TF	1998St28
	1142	2.4 ps	19/2 <sup>−</sup>	+2.9(10)		<sup>156</sup> <sub>64</sub> Gd	TF	1998St28
	89	2.21 ns	2 <sup>+</sup>	+0.82(14)		<sup>158</sup> <sub>64</sub> Gd 261	TF	1991St01
				+0.774(8)		<sup>155</sup> <sub>64</sub> Gd	ME	1974Ar23
					−1.93(4) a		Mu-X	1983La08
					−1.96(4)	<sup>155</sup> <sub>64</sub> Gd	ME	1974Ar23
	288	112 ps	4 <sup>+</sup>	+1.68(12)		<sup>156</sup> <sub>64</sub> Gd 89	TF	1992Br07
				+1.76(16)		<sup>156</sup> <sub>64</sub> Gd 89	TF	1990Ba39
				+1.31(8)		<sup>156</sup> <sub>64</sub> Gd 89	TF	1990Ba39
				+1.63(15)		B <sub>h</sub> rGd(Fe)	IPAC	1990Sc10
<sup>157</sup> <sub>64</sub> Gd				+1.55(14)		<sup>158</sup> <sub>64</sub> Gd 261	TF	1991St01
				+1.24(8)		<sup>156</sup> <sub>64</sub> Gd 89	TF	1991St01
				+2.4(2)			IPAC	1988Al33
				+2.3(4)		<sup>156</sup> <sub>64</sub> Gd 89	TF	1992Br07
				+2.2(4)		<sup>158</sup> <sub>64</sub> Gd 261	TF	1991St01
				+1.5(13)		<sup>156</sup> <sub>64</sub> Gd 89	TF	1991St01
				+2.7(3)			IPAC	1988Al33
	965	4.3 ps	8 <sup>+</sup>	+3.24(11)		<sup>156</sup> <sub>64</sub> Gd 89	TF	1992Br07
	1511	190 ps	4 <sup>+</sup>	$g(10+)/g(2+) = 0.89(12)$			IPAC	1988Al33
	gsb		<10 <sup>+</sup>	$\alpha \times 10^3 = -1.1(12)$			TF	1983Ha24
				−0.3398(7)		<sup>155</sup> <sub>64</sub> Gd	AB/D, ENDOR	1969Un02
	0	Stable	3/2 <sup>−</sup>	−0.3373(6)			ENDOR	1969Ba15
					+1.36(6) st		ABLS	1978Va24
					+1.35(3) a		Mu-X	1990Ji06
					+1.36(2) a		Mu-X, O	1983La08
<sup>158</sup> <sub>64</sub> Gd								1982Ta01
								1959Ka10
					1.34(7) st		O	1979Cl04
					+1.38(2)	<sup>155</sup> <sub>64</sub> Gd	AB	1969Un02
					−0.46(2) a		Mu-X	1983La08
	55	0.13 ns	5/2 <sup>−</sup>			<sup>157</sup> <sub>64</sub> Gd	ME, R	1974Ar23
	64	0.46 $\mu$ s	5/2 <sup>+</sup>	−0.464(11)		<sup>157</sup> <sub>64</sub> Gd	ME	1974Ar23
					+2.45(5)	<sup>158</sup> <sub>64</sub> Gd 261	TF	1992Br07
	80	2.52 ns	2 <sup>+</sup>	+0.78(6)			ME, R	1988Al33
				+0.762(8)		<sup>158</sup> <sub>64</sub> Gd 261	TF	1991St01

(continued on next page)

Table 1 (continued)

Nucleus	$E$ (level)	$\tau_{1/2}$	$I^\pi$	$\mu$ (nm) <sup>*</sup>	$Q$ (b)	Ref. Std.	Method	Reference
				+0.8(2)		<sup>156</sup> Gd 89	TF	1991St01
					−2.01(4) a		Mu-X	1983La08
					−1.96(4)	<sup>157</sup> Gd	ME	1974Ar23
	261	148 ps	4 <sup>+</sup>	+1.60(12)		<sup>158</sup> Gd 261	TF	1990Ba39
				+1.4(2)		<sup>156</sup> Gd 89	TF	1990Ba39
				+1.55(12)		<sup>156</sup> Gd 89	TF	1991St01
				+1.64(6)			IPAC	1988Al33
	539	16 ps	6 <sup>+</sup>	+2.5(2)		<sup>158</sup> Gd 261	TF	1992Br07
				2.4(3)		<sup>158</sup> Gd 261	TF	1991St01
				2.3(3)		<sup>156</sup> Gd 89	TF	1991St01
	904	5.1	8 <sup>+</sup>	3.4(4)		<sup>158</sup> Gd 261	TF	1992Br07
	gsb		<10 <sup>+</sup>	$g(10+)/g(2+)$ $= 0.83(11)$ $\alpha \times 10^3 = -1.7(11)$			TF	1983Ha24
<sup>159</sup> Gd	0	18.6 h	3/2 <sup>−</sup>	−0.44(3)			NO/S	1971Kr19
<sup>160</sup> Gd	75	2.70 ns	2 <sup>+</sup>	+0.72(4)		<sup>156</sup> Gd 89	RIGV, R	1974Ar23
					−2.08(4) a		Mu-X	1983La08
	248		4 <sup>+</sup>	1.6(2)		<sup>158</sup> Gd 261	TF	1991St01
				1.5(2)		<sup>158</sup> Gd 89	TF	1991St01
	515		6 <sup>+</sup>	2.4(3)		<sup>158</sup> Gd 261	TF	1991St01
				2.3(3)		<sup>156</sup> Gd 89	TF	1991St01
	gsb		<10 <sup>+</sup>	$g(10+)/g(2+)$ $= 0.93(13)$ $\alpha \times 10^3 = -0.7(12)$			TF	1983Ha24
<sup>147</sup> Tb	0	1.7 h	1/2 <sup>+</sup>	+1.70(5)		<sup>159</sup> Tb	CFBLS	1990Al36
<sup>148</sup> Tb	0	60 m	2 <sup>−</sup>	−1.75(2)		<sup>159</sup> Tb	CFBLS	1990Al36
					−0.3(2)	<sup>159</sup> Tb	CFBLS	1990Al36
<sup>149</sup> Tb	0	4.12 h	1/2 <sup>+</sup>	+1.35(2)		<sup>159</sup> Tb	CFBLS	1990Al36
	2518	2.4 ns	(27/2) <sup>+</sup>	4.9(12)			IPAD	1990Ad02
<sup>150</sup> Tb	0 + x	3.48 h	2 <sup>(−)</sup>	−0.90(2)		<sup>159</sup> Tb	CFBLS	1990Al36
					0.00(13)	<sup>159</sup> Tb	CFBLS	1990Al36
<sup>151</sup> Tb	0	17.6 h	1/2 <sup>(+)</sup>	+0.919(6)		<sup>159</sup> Tb	CFBLS	1990Al36
<sup>152</sup> Tb	0	17.5 h	2 <sup>−</sup>	−0.58(2)		<sup>159</sup> Tb	CFBLS	1990Al36
					+0.34(13)	<sup>159</sup> Tb	CFBLS	1990Al36
					+0.5(16)	<sup>159</sup> Tb	NO/S	1983Be03
<sup>153</sup> Tb	0	2.34 d	5/2 <sup>+</sup>	+3.44(2)		<sup>159</sup> Tb	CFBLS	1990Al36
				3.5(7)		<sup>159</sup> Tb	NO/S	1983Be03
					+1.08(14)	<sup>159</sup> Tb	CFBLS	1990Al36
<sup>154</sup> Tb	0 + x	9.4 h	3 <sup>−</sup>	+1.6(2)		<sup>159</sup> Tb	CFBLS	1990Al36
				1.8(4)		<sup>159</sup> Tb	NO/S	1983Be03
					+2.9(15)	<sup>159</sup> Tb	NO/S	1983Be03
<sup>155</sup> Tb	0 + y	22.7 h	7 <sup>−</sup>	0.9(3)		est	NO/S	1983Be03
	0	5.32 d	3/2 <sup>+</sup>	+2.01(2)		<sup>159</sup> Tb	CFBLS	1990Al36
				2.0(2)		<sup>159</sup> Tb	NO/S	1979Du08
					+1.41(6)	<sup>159</sup> Tb	CFBLS	1990Al36
<sup>156</sup> Tb	0	5.35 d	3 <sup>−</sup>	1.7(2)		<sup>159</sup> Tb	NO/S	1983Be03
				1.9(3)		<sup>159</sup> Tb	NO/S	1979Du08
				1.4(2)			NO/S	1962Lo01
					+2.3(8)	<sup>159</sup> Tb	NO/S	1983Be03
					+3.0(9)	<sup>159</sup> Tb	NO/S	1979Du08
					+1.4(5)	<sup>159</sup> Tb	NO/S	1962Lo01
<sup>157</sup> Tb	0	99 y	3/2 <sup>+</sup>	+2.01(2)		<sup>159</sup> Tb	CFBLS	1990Al36
				2.0(1)		<sup>159</sup> Tb	EPR	1968Ea04
					+1.40(8)	<sup>159</sup> Tb	CFBLS	1990Al36
<sup>158</sup> Tb	0	150 y	3 <sup>−</sup>	+1.758(7)		<sup>159</sup> Tb	EPR	1968Ea04
					+2.7(5) st		NO/S, EPR	1968Ea04
<sup>159</sup> Tb	0	Stable	3/2 <sup>+</sup>	+2.014(4)			EPR, ENDOR	1965Ba49
					+1.432(8) a		Mu-X, AB	1984Ta04
								1970Ch26
	58	53.5 ps	5/2 <sup>−</sup>	3.9(2)			IPAC	
					1.62(9) or 2.32(13)	<sup>159</sup> Tb	ME	1966At05
<sup>160</sup> Tb	0	72.1 d	3 <sup>−</sup>	1.790(7)		<sup>159</sup> Tb	NMR/ON	1987Ma42
				+1.702(8)		<sup>159</sup> Tb	EPR	1968Ea04
				1.5(6)		<sup>159</sup> Tb	NO/S	1983Be03

Table 1 (continued)

Nucleus	$E$ (level)	$\tau_{1/2}$	$I^\pi$	$\mu$ (nm) <sup>*</sup>	$Q$ (b)	Ref. Std.	Method	Reference			
<sup>161</sup> Tb	0	6.9 d	3/2 <sup>+</sup>	2.2(1)	3.85(5)	<sup>159</sup> <sub>65</sub> Tb	NMR/ON	1987Ma42			
					3.56(10)	<sup>159</sup> <sub>65</sub> Tb	NMR/ON	1986Ro07			
					+1.2(6)	<sup>159</sup> <sub>65</sub> Tb	NO/S	1983Ri15			
						<sup>159</sup> <sub>65</sub> Tb	NO/S	1983Ri15			
<sup>147</sup> <sub>66</sub> Dy	0	~1.3 m	(1/2 <sup>+</sup> )	−0.915(9)	+0.67(10)	<sup>163</sup> <sub>66</sub> Dy	CFBLS	1989Ra99			
	751	59 s	(11/2 <sup>−</sup> )	−0.655(10)			CFBLS	1989Ra99			
<sup>149</sup> <sub>66</sub> Dy	0	4.23 m	7/2 <sup>−</sup>	−0.119(7)	−0.62(5)	<sup>163</sup> <sub>66</sub> Dy	CFBLS	1989Ra99			
	8522	28 ns	(49/2)	+10.0(1.5)			<sup>163</sup> <sub>66</sub> Dy	CFBLS	1989Ra99		
<sup>151</sup> <sub>66</sub> Dy		0	17 m	7/2 <sup>−</sup>	−0.945(7)	−0.30(5)	<sup>152</sup> <sub>66</sub> Dy6129	TDPAD	2003Wa28		
<sup>152</sup> <sub>66</sub> Dy	6129	9.9 ns	21 <sup>−</sup>	+11.6(12)	<sup>163</sup> <sub>66</sub> Dy		CFBLS	1989Ra99			
	<sup>153</sup> <sub>66</sub> Dy	0	6.3 h	7/2 <sup>−</sup>		avge $g = 0.21(1)$	TDPAD	1979Me01			
−0.782(6)					TF		1991Ha16				
<sup>154</sup> <sub>66</sub> Dy	Yrast band		2 <sup>+</sup>	0.72(8)	−0.02(5)	<sup>163</sup> <sub>66</sub> Dy	CFBLS	1989Ra99			
						<sup>163</sup> <sub>66</sub> Dy	AB	1972Ro36			
						<sup>163</sup> <sub>66</sub> Dy	CFBLS	1989Ra99			
						<sup>163</sup> <sub>66</sub> Dy	AB	1972Ro36			
						Calculated	Theory	1993Bi05			
						Yrast band	4 <sup>+</sup>	1.6(2), $g/g(2+) = 1.1(2)$	<sup>164</sup> <sub>66</sub> Dy	IPAD	1993Bi05
										Yrast band 2+	1993Bi09
						Yrast band	6 <sup>+</sup> –8 <sup>+</sup>	$g/g(2+) = 1.0(3)$	<sup>164</sup> <sub>66</sub> Dy	IPAD	1993Bi05
										Yrast band 2+	1993Bi09
						Yrast band	10 <sup>+</sup> –14 <sup>+</sup>	$g/g(2+) = 0.5(4)$	<sup>164</sup> <sub>66</sub> Dy	IPAD	1993Bi05
Yrast band 2+	1993Bi09										
Yrast band	16 <sup>+</sup> –20 <sup>+</sup>	$g/g(2+) = 0.3(4)$	<sup>164</sup> <sub>66</sub> Dy	IPAD	1993Bi05						
				Yrast band 2+	1993Bi09						
Yrast band	22 <sup>+</sup> –30 <sup>+</sup>	$g/g(2+) = 0.8(4)$	<sup>164</sup> <sub>66</sub> Dy	IPAD	1993Bi05						
				Yrast band 2+	1993Bi09						
Yrast band	32 <sup>+</sup> –36 <sup>+</sup>	$g/g(2+) = 1.2(3)$	<sup>164</sup> <sub>66</sub> Dy	IPAD	1993Bi05						
				Yrast band 2+	1993Bi09						
<sup>155</sup> <sub>66</sub> Dy	Cont. 0	Short 10.0 h	$I(\text{av}) = 26$ 3/2 <sup>−</sup>	$g(\text{av}) = +0.39(5)$ −0.385(4) −0.339(2)	+1.04(3) +0.967(14)	<sup>163</sup> <sub>66</sub> Dy	TF	1984Ha39			
						<sup>163</sup> <sub>66</sub> Dy	CFBLS	1989Ra99			
						<sup>163</sup> <sub>66</sub> Dy	AB	1972Ro36			
						<sup>163</sup> <sub>66</sub> Dy	CFBLS	1989Ra99			
<sup>156</sup> <sub>66</sub> Dy	138 Cont.	0.82 ns Short	2 <sup>+</sup>	+0.78(8)		<sup>163</sup> <sub>66</sub> Dy	AB	1972Ro36			
							R	1984Ha39			
				$I(\text{av}) = 19$	$g(\text{av}) = +0.11(4)$ $g(\text{av}) = +0.12(3)$		<sup>163</sup> <sub>66</sub> Dy	TF	1985Ta02		
								$I(\text{av}) = 21$ $I(\text{av}) = 23$	$g(\text{av}) = +0.14(6)$ $g(\text{av}) = +0.20(3)$ $g(\text{av}) = +0.21(7)$	TF	1985Ta02
				$I(\text{av}) = 23$	$g(\text{av}) = +0.21(3)$		<sup>163</sup> <sub>66</sub> Dy	TF	1985Ta02		
								−0.301(2) −0.302(2)	TF	1985Ta02	
	<sup>157</sup> <sub>66</sub> Dy	0	8.1 h	3/2 <sup>−</sup>			<sup>163</sup> <sub>66</sub> Dy	TF	1984Ha39		
								<sup>163</sup> <sub>66</sub> Dy	CFBLS	1989Ra99	
	<sup>158</sup> <sub>66</sub> Dy	99 317	1.66 ns 73 ps	2 <sup>+</sup> 4 <sup>+</sup>	+0.72(5) +1.33(10) +1.36(8) +1.4(2)	+1.30(2) +1.30(1)	<sup>163</sup> <sub>66</sub> Dy	AB	1972Ro36		
								<sup>163</sup> <sub>66</sub> Dy	CFBLS	1989Ra99	
						<sup>163</sup> <sub>66</sub> Dy	AB	1972Ro36			
							<sup>163</sup> <sub>66</sub> Dy	CFBLS	1989Ra99		
							<sup>163</sup> <sub>66</sub> Dy	AB	1972Ro36		
								<sup>163</sup> <sub>66</sub> Dy	CFBLS	1989Ra99	
							<sup>163</sup> <sub>66</sub> Dy	AB	1972Ro36		
								<sup>163</sup> <sub>66</sub> Dy	CFBLS	1989Ra99	
							<sup>163</sup> <sub>66</sub> Dy	AB	1972Ro36		
								<sup>163</sup> <sub>66</sub> Dy	CFBLS	1989Ra99	
						<sup>163</sup> <sub>66</sub> Dy	AB	1972Ro36			
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						<sup>163</sup> <sub>66</sub> Dy	AB	1972Ro36			
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						<sup>163</sup> <sub>66</sub> Dy	AB	1972Ro36			
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						<sup>163</sup> <sub>66</sub> Dy	AB	1972Ro36			
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						<sup>163</sup> <sub>66</sub> Dy	AB	1972Ro36			
							<sup>163</sup> <sub>66</sub> Dy	CFBLS	1989Ra99		
						<sup>163</sup> <sub>66</sub> Dy	AB	1972Ro36			
							<sup>163</sup> <sub>66</sub> Dy	CFBLS	1989Ra99		

(continued on next page)

Table 1 (continued)

Nucleus	$E$ (level)	$\tau_{1/2}$	$I^\pi$	$\mu$ (nm) <sup>*</sup>	$Q$ (b)	Ref. Std.	Method	Reference
<sup>161</sup> <sub>66</sub> Dy				+0.70(3)			TDPAC	1984Si07
					1.8(4)		TDPAC	1970Wa25
	284	101 ps	4 <sup>+</sup>	+1.60(12)			IPAC	1997Al04
				+1.40(8)			IPAC	1996Al02
	581	18.6 ps	6 <sup>+</sup>	+2.11(10)			TF	1999Br43
				+1.45(12)			IPAC	1997Al04
	966	1.34 ps	2 <sup>+</sup>	+0.80(5)			TF	1999Br43
				+0.63(2)			IPAC	1995Al22
				+0.34(9)			IPAC	1969Si01
								1975Kh03
	967	3.8 ps	8 <sup>+</sup>	+2.7(2)			TF	1999Br43
				+2.4(8)			IPAC	1997Al04
	1429	1.56 ps	10 <sup>+</sup>	+3.1(3)			TF	1999Br43
	1951	0.89 ps	12 <sup>+</sup>	+3.6(7)			TF	1999Br43
	gs band		<16 <sup>+</sup>	$\alpha \times 10^3 = -1.5(16)$			TF	1980An27
<sup>162</sup> <sub>66</sub> Dy	0	Stable	5/2 <sup>+</sup>	−0.480(3)		<sup>163</sup> <sub>66</sub> Dy	AB	1974Fe05
				−0.481(5)			AB/D	1974Fe05
					+2.51(2)	<sup>163</sup> <sub>66</sub> Dy	AB	1974Fe05
					2.47(3) a		Mu-X	1977Po15
	26	29 ns	5/2 <sup>−</sup>	+0.594(3)		<sup>161</sup> <sub>66</sub> Dy	ME, R	1976St73
					+2.51(2)	<sup>161</sup> <sub>66</sub> Dy	ME, R	1976St73
	44	0.78 ns	7/2 <sup>+</sup>	−0.141(5)		<sup>161</sup> <sub>66</sub> Dy	ME	1973Sy01
					+0.53(13)	<sup>161</sup> <sub>66</sub> Dy	ME	1973Sy01
	75	3.2 ns	3/2 <sup>−</sup>	−0.403(4)		<sup>161</sup> <sub>66</sub> Dy	ME, R	1976St73
					+1.45(6)	<sup>161</sup> <sub>66</sub> Dy	ME, R	1976St73
	81	2.25 ns	2 <sup>+</sup>	+0.69(3)			RIGV	1970Be36
								1973Ka25
	266	133 ps	4 <sup>+</sup>	+1.14(12)			IPAC	1997Al04
	549	19 ps	6 <sup>+</sup>	+2.18(11)			TF	1999Br43
				+1.8(2)			IPAC	1997Al04
<sup>163</sup> <sub>66</sub> Dy	888	2.0 ps	2 <sup>+</sup>	+0.92(6)			TF	1999Br43
	921	4.5 ps	8 <sup>+</sup>	+3.05(16)			TF	1999Br43
				+3.4(10)			IPAC	1997Al04
	1375	1.6 ps	10 <sup>+</sup>	+3.6(4)			TF	1999Br43
	0	Stable	5/2 <sup>−</sup>	+0.673(4)			AB/D	1974Fe05
					2.318(6)		AB	1974Fe05
					+2.65(2) a		Mu-X, O	1984Ta04
								1973Mu06
	<sup>164</sup> <sub>66</sub> Dy	73	2 <sup>+</sup>	+0.68(2)		<sup>161</sup> <sub>66</sub> Dy	ME	1968Mu01
				+0.73(3)			RIGV	1970Be36
					−2.08(15)	<sup>161</sup> <sub>66</sub> Dy	ME	1968Mu01
	242	0.20 ns	4 <sup>+</sup>	+1.00(12)		<sup>162</sup> <sub>66</sub> Dy 81	IPAC	1997AL25
				+1.5(5)		<sup>164</sup> <sub>66</sub> Dy 73	TF	1989Do12
	501	26.6 ps	6 <sup>+</sup>	+1.95(10)			TF	1999Br43
				+1.6(3)		<sup>162</sup> <sub>66</sub> Dy 81	IPAC	1997AL25
<sup>164</sup> <sub>66</sub> Dy				+1.7(5)			IMPAC	1983Se09
	762	4.6 ps	2 <sup>+</sup>	+0.76(5)			TF	1999Br43
				+0.6(2)		<sup>164</sup> <sub>66</sub> Dy 73	TF	1989Do12
	844	7.2 ps	8 <sup>+</sup>	+2.48(16)			TF	1999Br43
				+2.2(7)		<sup>164</sup> <sub>66</sub> Dy 73	TF	1989Do12
	1261	2.3 ps	10 <sup>+</sup>	+3.1(4)			TF	1999Br43
				+3.5(13)		<sup>164</sup> <sub>66</sub> Dy 73	TF	1989Do12
	<sup>165</sup> <sub>66</sub> Dy	0	7/2 <sup>+</sup>	−0.520(5)		<sup>163</sup> <sub>66</sub> Dy	AB	1968Ra03
					−3.49(7)	<sup>163</sup> <sub>66</sub> Dy	AB	1968Ra03
	<sup>152</sup> <sub>67</sub> Ho	0	2 <sup>−</sup>	−1.02(2)		<sup>165</sup> <sub>67</sub> Ho	LRIMS	1989Al27
					+0.1(2) st	<sup>165</sup> <sub>67</sub> Ho	LRIMS	1989Al27
	160	49.5 s	9 <sup>+</sup>	+5.94(5)		<sup>165</sup> <sub>67</sub> Ho	LRIMS	1989Al27
					−1.3(8) st	<sup>165</sup> <sub>67</sub> Ho	LRIMS	1989Al27
	<sup>153</sup> <sub>67</sub> Ho	0	11/2 <sup>−</sup>	+6.81(5)		<sup>165</sup> <sub>67</sub> Ho	LRIMS	1989Al27
					−1.1(5) st	<sup>165</sup> <sub>67</sub> Ho	LRIMS	1989Al27
<sup>154</sup> <sub>67</sub> Ho	68	9.3 m	1/2 <sup>+</sup>	+1.19(1)		<sup>165</sup> <sub>67</sub> Ho	LRIMS	1989Al27
	0	11.76 m	2 <sup>−</sup>	−0.643(6)		<sup>165</sup> <sub>67</sub> Ho	LRIMS	1989Al27
					+0.19(10) st	<sup>165</sup> <sub>67</sub> Ho	LRIMS	1989Al27
	320	3.10 m	8 <sup>+</sup>	+5.65(6)		<sup>165</sup> <sub>67</sub> Ho	LRIMS	1989Al27

Table 1 (continued)

Nucleus	$E$ (level)	$\tau_{1/2}$	$I^\pi$	$\mu$ (nm) <sup>*</sup>	$Q$ (b)	Ref. Std.	Method	Reference
$^{155}_{67}\text{Ho}$	0	48 m	$5/2^+$	$+3.51(3)$	$-1.0(5)$ st	$^{165}_{67}\text{Ho}$	LRIMS	1989Al27
					$+1.52(10)$ st	$^{165}_{67}\text{Ho}$	LRIMS	1989Al27
$^{156}_{67}\text{Ho}$	0	56 m	$4^{(+)}$	$+2.99(3)$	$+2.3(2)$ st	$^{165}_{67}\text{Ho}$	LRIMS	1989Al27
					$+2.97(13)$ st	$^{165}_{67}\text{Ho}$	LRIMS	1989Al27
$^{157}_{67}\text{Ho}$	0	12.6 m	$7/2^-$	$+4.35(3)$		$^{165}_{67}\text{Ho}$	LRIMS	1989Al27
$^{158}_{67}\text{Ho}$	0	11.3 m	$5^+$	$+3.77(3)$	$+4.1(4)$ st	$^{165}_{67}\text{Ho}$	LRIMS	1989Al27
					$+1.6(2)$ st	$^{165}_{67}\text{Ho}$	LRIMS	1989Al27
$^{159}_{67}\text{Ho}$	0	35.05 m	$7/2^-$	$+4.28(3)$	$3.19(13)$ st	$^{165}_{67}\text{Ho}$	LRIMS	1989Al27
					$+4.0(2)$ st	$^{165}_{67}\text{Ho}$	LRIMS	1989Al27
$^{160}_{67}\text{Ho}$	0	25.6 m	$5^+$	$+3.71(3)$		$^{165}_{67}\text{Ho}$	LRIMS	1989Al27
						$^{165}_{67}\text{Ho}$	LRIMS	1989Al27
$^{161}_{67}\text{Ho}$	0	2.48 h	$7/2^-$	$+4.25(3)$	$3.22(11)$ st	$^{165}_{67}\text{Ho}$	LRIMS	1989Al27
					$3.9(7)$ st	$^{165}_{67}\text{Ho}$	LRIMS	1989Al27
$^{162}_{67}\text{Ho}$	106	67 m	$6^-$	$+3.60(4)$		$^{165}_{67}\text{Ho}$	LRIMS	1989Al27
$^{163}_{67}\text{Ho}$	0	4570 y	$7/2^-$	$+4.23(4)$	$3.6(6)$ st	$^{165}_{67}\text{Ho}$	LRIMS	1989Al27
$^{165}_{67}\text{Ho}$	0	Stable	$7/2^-$	$+4.17(3)$			AB/D, R	1974Da11
					$3.58(2)$ a		Pi-X	1983OI03
					$+2.716(9)$		ABLS	1982Bu13
					$3.60(2)$ a		Pi-X	1981Ba07
					$3.41(8)$ a		Ka-X	1981Ba07
					$3.53(8)$ a		Pi-X	1978Eb01
					$+3.49(3)$ a		Mu-X, AB	1976Po05
								1974Da10
						$^{165}_{67}\text{Ho}$	ME	1972Ge21
					$3.43(4)$ a		Mu-X	1976Po05
$^{166}_{67}\text{Ho}$	6	1200 y	$(7)^-$	$3.60(16)$			NO/S	1981Kr12
				$3.65(13)$		$^{165}_{67}\text{Ho}$	NO/S	1981Ma43
				$3.60(5)$			NO/S	1980Al34
					$-3(3)$	$^{165}_{67}\text{Ho}$	NO/S	1981Ma43
$^{152}_{68}\text{Er}$	54	3.4 ns	$2^-$	$+0.068(10)$			IPAC	1979Ba40
	2184	1.8 ns	$8^+$	$-0.6(6)$			IPAD	1984AdZT
	4521	1.2 ns	$16^+$	$+5(2)$			IPAD	1984AdZT
$^{153}_{68}\text{Er}$	0	37.1 s	$(7/2^-)$	$-0.934(5)$	$-0.42(2)$	$^{167}_{68}\text{Er}$	CFBLS	1989Ra99
$^{154}_{68}\text{Er}$	$3016 + x$	39 ns	$11^-$	$+0.169(13)$		$^{167}_{68}\text{Er}$	CFBLS	1989Ra99
				$+0.19(3)$			TDPAD	1984Ra11
$^{155}_{68}\text{Er}$	0	5.3 m	$7/2^-$	$-0.669(4)$	$-0.27(2)$	$^{167}_{68}\text{Er}$	TDPAD	1983Ng02
$^{156}_{68}\text{Er}$	563	30 ns	$13/2^+$	$-0.55(3)$		$^{167}_{68}\text{Er}$	CFBLS	1989Ra99
	345	33 ps	$2^+$	$0.80(12)$		$^{167}_{68}\text{Er}$	CFBLS	1989Ra99
$^{157}_{68}\text{Er}$	0	25 m	$3/2^-$	$-0.412(3)$	$+0.92(2)$	$^{167}_{68}\text{Er}$	RIGV	1970No01
$^{158}_{68}\text{Er}$	$266 + x$	54 ps	$17/2^+$	$0.4(4)$			CFBLS	1989Ra99
	192	0.30 ns	$2^+$	$0.72(11)$		$^{167}_{68}\text{Er}$	IAPAD	1974Na08
$^{159}_{68}\text{Er}$	0	36 m	$3/2^-$	$-0.304(2)$	$+1.17(1)$	$^{167}_{68}\text{Er}$	RIGV	1970No01
$^{160}_{68}\text{Er}$	784	8.2 ps	$21/2^+$	$<0.74$			CFBLS	1989Ra99
	390	34 ps	$4^+$	$1.28(19)$		$^{167}_{68}\text{Er}$	RIGV	1980Sp03
$^{161}_{68}\text{Er}$	0	3.21 h	$3/2^-$	$-0.365(3)$		$^{167}_{68}\text{Er}$	RIGV	1970No01
$^{162}_{68}\text{Er}$	102	1.3 ns	$2^+$	$-0.369(3)$		$^{167}_{68}\text{Er}$	CFBLS	1989Ra99
					$+1.35(2)$	$^{167}_{68}\text{Er}$	AB	1972Ek03
					$+1.361(14)$	$^{167}_{68}\text{Er}$	CFBLS	1989Ra99
					$<0$	$^{167}_{68}\text{Er}$	AB	1972Ek03
$^{163}_{68}\text{Er}$	0	75.1 m	$5/2^-$	$+0.557(4)$	$1.8(6)$		CER	1981Hu02
					$+2.55(3)$	$^{167}_{68}\text{Er}$	CER	1983Hu01
$^{163}_{68}\text{Er}$	0	75.1 m	$5/2^-$	$+0.557(4)$		$^{167}_{68}\text{Er}$	CFBLS	1989Ra99
						$^{167}_{68}\text{Er}$	CFBLS	1989Ra99

(continued on next page)

Table 1 (continued)

Nucleus	$E$ (level)	$\tau_{1/2}$	$I^\pi$	$\mu$ (nm) <sup>*</sup>	$Q$ (b)	Ref. Std.	Method	Reference
<sup>164</sup> <sub>68</sub> Er	92	1.48 ns	2 <sup>+</sup>	0.697(15)	<0	<sup>166</sup> <sub>68</sub> Er 81	ME	1968Mu01
							CER	1981Hu02
	299	86 ps	4 <sup>+</sup>	+1.46(15)		<sup>166</sup> <sub>68</sub> Er 81	IPAC	1997AL25
				+1.36(8)			TF	1996Br09
	614		6 <sup>+</sup>	+1.88(9)	2.4(3)		TF	1996Br09
	860	1.9 ps	2 <sup>+</sup>	+0.81(6)			TF	1996Br09
							CER	1983Hu01
	1025	2.6 ps	8 <sup>+</sup>	+2.72(13)			TF	1996Br09
	1518	1.0 ps	10 <sup>+</sup>	+3.2(3)			TF	1996Br09
	0	10.36 h	5/2 <sup>−</sup>	+0.643(3)		<sup>167</sup> <sub>68</sub> Er	CFBLS	1989Ra99
<sup>165</sup> <sub>68</sub> Er					+2.71(3)	<sup>167</sup> <sub>68</sub> Er	CFBLS	1989Ra99
	243	0.31 ns	3/2 <sup>−</sup>	+0.6(2)	−2.7(9) −2.9(10) −1.9(4) st			1978EgZY
	81	1.85 ns	2 <sup>+</sup>	+0.649(10)		<sup>167</sup> <sub>68</sub> Er	ME	1981Ho31
				+0.632(10)		<sup>167</sup> <sub>68</sub> Er	ME	1968Mu01
								1964Do09
							CER	1970McZQ
							CER	1970Ka45
							ME	1965Hu01
							TF	1996Br09
	265	118 ps	4 <sup>+</sup>	+1.14(8)		<sup>166</sup> <sub>68</sub> Er 81	IPAC	1985Al22
				+1.26(6)			CER	1969McZS
<sup>166</sup> <sub>68</sub> Er	545	16.8 ps	6 <sup>+</sup>	+1.72(9)	−2.7(9)		TF	1996Br09
				+1.6(2)		<sup>166</sup> <sub>68</sub> Er 265	TF	1986Do13
				+1.55(7)		<sup>166</sup> <sub>68</sub> Er 81	IPAC	1985Al22
	786	4.6 ps	2 <sup>+</sup>	+0.74(5)			TF	1996Br09
				+0.56(9)		<sup>166</sup> <sub>68</sub> Er 265	TF	1986Do13
							CER	1983Hu01
							CER	1977Mc11
							CER	1970McZQ
	911	4.2 ps	8 <sup>+</sup>	+2.2(2)			TF	1996Br09
				+1.9(3)		<sup>166</sup> <sub>68</sub> Er 265	TF	1986Do13
<sup>167</sup> <sub>68</sub> Er				+2.1(4)	+3.57(3) a +2.827(12)	<sup>166</sup> <sub>68</sub> Er 81	IPAC	1985Al22
	1216	3.9 ps	6 <sup>+</sup>	+1.5(2)		<sup>166</sup> <sub>68</sub> Er 81	IPAC	1985Al22
	1350	1.7 ps	10 <sup>+</sup>	+2.8(4)			TF	1996Br09
				+2.0(8)		<sup>166</sup> <sub>68</sub> Er 265	TF	1986Do13
	0	Stable	7/2 <sup>+</sup>	−0.56385(12)			AB/D	1984Fo02
				−0.565(2)			AB	1965Sm04
							Mu-X	1984Ta04
							AB	1965Sm04
	80	1.86 ns	2 <sup>+</sup>	+0.62(6)		<sup>166</sup> <sub>68</sub> Er 81	IPAC	1980Fu03
				+0.658(14)			ME	1968Mu01
<sup>168</sup> <sub>68</sub> Er	264	121 ps	4 <sup>+</sup>	+1.17(12)	−2.2(10)	<sup>166</sup> <sub>68</sub> Er 265	TF	1996Br09
				+1.26(16)			IMPAC	1968De28
							CER	1970McZQ
	549	16.8 ps	6 <sup>+</sup>	+1.81(12)			TF	1996Br09
				+2.0(3)		<sup>168</sup> <sub>68</sub> Er 264	TF	1989Do12
	821	2.9 ps	2 <sup>+</sup>	+0.77(4)			TF	1996Br09
				+0.72(14)		<sup>168</sup> <sub>68</sub> Er 549	TF	1989Do12
							CER	1983Hu01
	928	3.4 ps	8 <sup>+</sup>	+2.4(2)			TF	1996Br09
				+2.7(5)		<sup>168</sup> <sub>68</sub> Er 549	TF	1989Do12
<sup>169</sup> <sub>68</sub> Er	1094	112.5 ns	4 <sup>−</sup>	+0.96(4)	−2.2(10) 2.0(3)		TDPAC	1980Fu03
	1396	1.4 ps	10 <sup>+</sup>	+3.1(4)			TF	1996Br09
				+3.2(8)		<sup>168</sup> <sub>68</sub> Er 549	TF	1989Do12
	0	9.40 d	1/2 <sup>−</sup>	+0.52(3)			AB/D	1963Do09
				+0.4850(2)		<sup>167</sup> <sub>68</sub> Er	AB	1963Do09
								1965Sm04
						<sup>166</sup> <sub>68</sub> Er 81	ME	1969Wi04
	79	1.90 ns	2 <sup>+</sup>	0.633(13)			CER	1973Lu02
						<sup>166</sup> <sub>68</sub> Er 265	IMPAC	1968De28
	260	~135 ps	4 <sup>+</sup>	+1.09(15)			CER	1970McZQ
<sup>170</sup> <sub>68</sub> Er	934	1.7 ps	2 <sup>+</sup>		2.86(9)		CER	1983Hu01
	0	7.52 h	5/2 <sup>−</sup>	0.659(10)		<sup>167</sup> <sub>68</sub> Er	AB	1964Bu09
						<sup>167</sup> <sub>68</sub> Er	AB	1964Bu09



Table 1 (continued)

Nucleus	$E$ (level)	$\tau_{1/2}$	$I^\pi$	$\mu$ (nm) <sup>*</sup>	$Q$ (b)	Ref. Std.	Method	Reference
<sup>153</sup> <sub>69</sub> Tm	0	1.48 s	(11/2 <sup>−</sup> )	6.93(11)		<sup>169</sup> <sub>69</sub> Tm	LRIS	2000Ba16
					+0.5(10)	<sup>169</sup> <sub>69</sub> Tm	LRIS	2000Ba16
<sup>154</sup> <sub>69</sub> Tm	0	8.1 s	(2 <sup>−</sup> )	−1.14(2)		<sup>169</sup> <sub>69</sub> Tm	LRIS	2000Ba16
					+0.4(9)	<sup>169</sup> <sub>69</sub> Tm	LRIS	2000Ba16
	0 + $x$	3.30 s	(9 <sup>+</sup> )	+5.91(5)		<sup>169</sup> <sub>69</sub> Tm	LRIS	2000Ba16
					−0.2(4)	<sup>169</sup> <sub>69</sub> Tm	LRIS	2000Ba16
<sup>156</sup> <sub>69</sub> Tm	0	1.3 m	2 <sup>−</sup>	+0.40(3)		<sup>169</sup> <sub>69</sub> Tm	LRIMS	1989Ra17
					−0.48(11) st	<sup>170</sup> <sub>69</sub> Tm	LRIMS	1989Ra17
<sup>157</sup> <sub>69</sub> Tm	0	3.6 m	1/2 <sup>+</sup>	+0.476(15)		<sup>169</sup> <sub>69</sub> Tm	LRIMS	1988A104
<sup>158</sup> <sub>69</sub> Tm	0	4.3 m	2 <sup>−</sup>	+0.04(2)		<sup>169</sup> <sub>69</sub> Tm	LRIMS	1988A104
					+0.74(11) st	<sup>170</sup> <sub>69</sub> Tm	LRIMS	1988A104
<sup>159</sup> <sub>69</sub> Tm	0	9.0 m	5/2 <sup>+</sup>	+3.42(3)		<sup>169</sup> <sub>69</sub> Tm	LRIMS	1988A104
					+1.93(7) st	<sup>170</sup> <sub>69</sub> Tm	LRIMS	1988A104
<sup>160</sup> <sub>69</sub> Tm	0	9.4 m	1 <sup>−</sup>	+0.16(2)		<sup>169</sup> <sub>69</sub> Tm	LRIMS	1988A104
					+0.58(4) st	<sup>170</sup> <sub>69</sub> Tm	LRIMS	1988A104
<sup>161</sup> <sub>69</sub> Tm	0	38 m	7/2 <sup>+</sup>	+2.40(2)		<sup>169</sup> <sub>69</sub> Tm	LRIMS	1988A104
					+2.90(7) st	<sup>170</sup> <sub>69</sub> Tm	LRIMS	1988A104
<sup>162</sup> <sub>69</sub> Tm	0	21 m	1 <sup>−</sup>	+0.068(8)		<sup>169</sup> <sub>69</sub> Tm	LRIMS	1988A104
					+0.69(3) st	<sup>170</sup> <sub>69</sub> Tm	LRIMS	1988A104
<sup>163</sup> <sub>69</sub> Tm	0	1.8 h	1/2 <sup>+</sup>	−0.082(1)		<sup>169</sup> <sub>69</sub> Tm	AB, LRIMS	1967Dy01
								1988A104
<sup>164</sup> <sub>69</sub> Tm	0	2.0 m	1 <sup>+</sup>	+2.38(3)		<sup>169</sup> <sub>69</sub> Tm	LRIMS	1988A104
					+0.71(5) st	<sup>170</sup> <sub>69</sub> Tm	LRIMS	1988A104
<sup>165</sup> <sub>69</sub> Tm	0	30.06 h	1/2 <sup>+</sup>	−0.139(2)		<sup>169</sup> <sub>69</sub> Tm	AB, LRIMS	1988A104
								1968Sc26
<sup>166</sup> <sub>69</sub> Tm	0	7.7 h	2 <sup>+</sup>	+0.092(1)		<sup>169</sup> <sub>69</sub> Tm	AB, LRIMS	1988A104
					+2.14(3) st	<sup>170</sup> <sub>69</sub> Tm	LRIMS	1972Ad14
						<sup>169</sup> <sub>69</sub> Tm	AB, R, LRIMS	1988A104
<sup>167</sup> <sub>69</sub> Tm	0	9.25 d	1/2 <sup>+</sup>	−0.197(2)		<sup>169</sup> <sub>69</sub> Tm	AB, R, LRIMS	1973Ek01
								1988A104
<sup>168</sup> <sub>69</sub> Tm	0	85 d	3 <sup>+</sup>	+0.227(11)		<sup>169</sup> <sub>69</sub> Tm	LRIMS	1988A104
					+3.23(7) st	<sup>170</sup> <sub>69</sub> Tm	LRIMS	1988A104
<sup>169</sup> <sub>69</sub> Tm	0	Stable	1/2 <sup>+</sup>	−0.2310(15) d			AB	1967Gi04
				−0.229(3)			AB/D	1962Ri11
				0.24(1)			PMR	1961Ha37
				−0.21(2)			O	1955Li49
	8	3.9 ns	3/2 <sup>+</sup>	+0.515(5)		<sup>169</sup> <sub>69</sub> Tm	ME	1976Wi99
				+0.513(5)		<sup>169</sup> <sub>69</sub> Tm	ME	1980JM99
					−1.2(1) st		ME	1973Lu02
	118	62 ps	5/2 <sup>+</sup>	+0.76(5)			IPAC	1969Gu01
								1968Ka14
	139	302 ps	7/2 <sup>+</sup>	+1.34(5)			IPAC	1969Gu01
								1968Ka14
	316	660 ns	7/2 <sup>+</sup>	+0.156(8)			TDPAC	1972Ni03
	332	19 ps	9/2 <sup>+</sup>	+1.56(9)		<sup>169</sup> <sub>69</sub> Tm 118, 139	TF	1999Ro03
	368	42 ps	11/2 <sup>+</sup>	+2.28(14)		<sup>169</sup> <sub>69</sub> Tm 118, 139	TF	1999Ro03
	379	48 ns	7/2 <sup>−</sup>	+3.04(14)			TDPAC	1997De02
	637	5.6 ps	13/2 <sup>+</sup>	+2.37(14)		<sup>169</sup> <sub>69</sub> Tm 118, 139	TF	1999Ro03
	691	8.4 ps	15/2 <sup>+</sup>	+3.2(3)		<sup>169</sup> <sub>69</sub> Tm 118, 139	TF	1999Ro03
	1028	2.0 ps	17/2 <sup>+</sup>	+3.2(3)		<sup>169</sup> <sub>69</sub> Tm 118, 139	TF	1999Ro03
	1104	2.0 ps	19/2 <sup>+</sup>	+4.2(8)		<sup>169</sup> <sub>69</sub> Tm 118, 139	TF	1999Ro03
<sup>170</sup> <sub>69</sub> Tm	0	128.6 d	1 <sup>+</sup>	+0.246(2)		<sup>169</sup> <sub>69</sub> Tm	ABLS	1988Dy02
				+0.247(5)		<sup>169</sup> <sub>69</sub> Tm	AB, R	1960Ca15
								1967Gi04
					+0.72(5) st	<sup>169</sup> <sub>69</sub> Tm	ABLS	1973Ek01
					+0.74(2) st		AB, R, LRIMS	1988Dy02
								1973Ek01
					0.63(5)		AB/R	1988A104
								1960Ca15
								1973Ek01
<sup>171</sup> <sub>69</sub> Tm	0	1.92 y	1/2 <sup>+</sup>	−0.228(4)		<sup>169</sup> <sub>69</sub> Tm	AB, R	1967Gi04
								1964Bu09
	117	55 ps	5/2 <sup>+</sup>	+0.8(4)			IPAC	1968Ka14
	129	415 ps	7/2 <sup>+</sup>	+1.27(12)			IPAC	1968Ka14
	636	1.26 ns	7/2 <sup>+</sup>	+1.2(2)			IPAC	1978Ba03

(continued on next page)

Table 1 (continued)

Nucleus	$E$ (level)	$\tau_{1/2}$	$I^\pi$	$\mu$ (nm) <sup>*</sup>	$Q$ (b)	Ref. Std.	Method	Reference
<sup>155</sup> <sub>70</sub> Yb	0	1.59 s	(7/2 <sup>−</sup> )	−0.91(2) −0.84(8)	−0.5(3) −1.2(10)		LRIS LRIMS LRIS LRIMS	1998Ba08 1992Al25 1998Ba08 1992Al25
<sup>157</sup> <sub>70</sub> Yb	0	38.6 s	7/2 <sup>−</sup>	−0.639(8)		<sup>171</sup> <sub>70</sub> Yb	CFBLS	1992Ku21
	494 + $x$	45 ns	13/2 <sup>+</sup>	−0.75(8)			TDPAD	1984Ra11
<sup>158</sup> <sub>70</sub> Yb	Band		30–38	(+)0.20(7)			TF	1988KIZX
<sup>159</sup> <sub>70</sub> Yb	0	1.58 m	5/2 <sup>(−)</sup>	−0.368(8) −0.366(8)		<sup>171</sup> <sub>70</sub> Yb <sup>173</sup> <sub>70</sub> Yb <sup>173</sup> <sub>70</sub> Yb	CFBLS CFBLS CFBLS	1992Ku21 1983Ne13 1983Ne13
<sup>160</sup> <sub>70</sub> Yb	Band		~4 <sup>+</sup>	+1.9(10)	−0.22(2)		IPAC	1990Lu02
	Band		14 <sup>+</sup>	−3(4)			IPAC	1990Lu02
	Band		34–42	0.12(7)			TF	1988KIZX
<sup>161</sup> <sub>70</sub> Yb	0	4.2 m	3/2 <sup>−</sup>	−0.327(8)		<sup>173</sup> <sub>70</sub> Yb <sup>173</sup> <sub>70</sub> Yb	CFBLS CFBLS	1983Ne13 1983Ne13
<sup>162</sup> <sub>70</sub> Yb	Cont.		20–32	$g(\text{av}) = 0.24(5)$	+1.03(2)		TF	1984Ma10
<sup>163</sup> <sub>70</sub> Yb	0	11.0 m	3/2 <sup>−</sup>	−0.374(8)		<sup>173</sup> <sub>70</sub> Yb <sup>173</sup> <sub>70</sub> Yb	CFBLS CFBLS	1983Ne13 1983Ne13
<sup>164</sup> <sub>70</sub> Yb	123	0.88 ns	2 <sup>+</sup>	+0.64(10)	+1.24(2)		IPAC	2004Be13
<sup>165</sup> <sub>70</sub> Yb	0	9.9 m	5/2 <sup>−</sup>	+0.478(8)		<sup>173</sup> <sub>70</sub> Yb <sup>173</sup> <sub>70</sub> Yb	CFBLS CFBLS	1983Ne13 1983Ne13
<sup>167</sup> <sub>70</sub> Yb	0	17.5 m	5/2 <sup>−</sup>	+0.623(8)	+2.48(4)	<sup>173</sup> <sub>70</sub> Yb <sup>173</sup> <sub>70</sub> Yb	CFBLS CFBLS	1983Ne13 1983Ne13
<sup>169</sup> <sub>70</sub> Yb	0	32.0 d	7/2 <sup>+</sup>	−0.635(8) −0.633(16)	+2.70(4)	<sup>173</sup> <sub>70</sub> Yb <sup>173</sup> <sub>70</sub> Yb <sup>173</sup> <sub>70</sub> Yb	CFBLS CFBLS O, R	1983Ne13 1983Ne13 1983Ne13
					+3.54(6) +3.52(7)	<sup>173</sup> <sub>70</sub> Yb <sup>173</sup> <sub>70</sub> Yb	CFBLS O, R	1983Ne13 1983Ne13
<sup>170</sup> <sub>70</sub> Yb	24	46 s	1/2 <sup>−</sup>	+0.507(8)		<sup>173</sup> <sub>70</sub> Yb	CFBLS	1983Ne13
	84	1.57 ns	2 <sup>+</sup>	+0.674(8)		<sup>171</sup> <sub>70</sub> Yb	ME	1968Mu01
					2.1(4)	<sup>172</sup> <sub>70</sub> Yb 79 <sup>169</sup> <sub>69</sub> Tm	ME TF	1965Hu03 1971Pi03 1979Wa15
<sup>171</sup> <sub>70</sub> Yb	gs band		<12 <sup>+</sup>	$\alpha \times 10^3 = -0.5(15)$			TF	1980An27
	gs band		<18 <sup>+</sup>	$\alpha \times 10^3 = -2.4(15)$			TF	1980An27
	0	Stable	1/2 <sup>−</sup>	+0.49367(1) +0.4949(4)		<sup>23</sup> <sub>11</sub> Na <sup>35</sup> <sub>17</sub> Cl	OP/RD N	1972Ol01 1964Go06
	67	0.81 ns	3/2 <sup>−</sup>	0.350(2)		<sup>171</sup> <sub>70</sub> Yb	ME	1966He09 1966Gu07
					1.6(3)	<sup>170</sup> <sub>70</sub> Yb 84	ME	1971Pi03
	76	1.64 ns	5/2 <sup>−</sup>	+1.015(5)		<sup>171</sup> <sub>70</sub> Yb <sup>170</sup> <sub>70</sub> Yb 84	ME ME	1970He25 1971Pi03
	231	(Est 136 ps)	7/2 <sup>−</sup>	0.83(5)	2.2(4)		TF	2000ST06
	247	(Est 135 ps)	9/2 <sup>−</sup>	1.53(7)			TF	2000ST06
	487	(Est 21 ps)	11/2 <sup>−</sup>	1.54(8)			TF	2000ST06
	509	(Est 21 ps)	13/2 <sup>−</sup>	2.31(12)			TF	2000ST06
	833	(Est 5.1 ps)	15/2 <sup>−</sup>	2.10(14)			TF	2000ST06
	860	(Est 5.1 ps)	17/2 <sup>−</sup>	2.83(15)			TF	2000ST06
	1263	(Est 1.8 ps)	19/2 <sup>−</sup>	2.5(3)			TF	2000ST06
	1293	(Est 1.8 ps)	(21/2 <sup>−</sup> )	3.0(3)			TF	2000ST06
<sup>172</sup> <sub>70</sub> Yb	260	0.122 ns	4 <sup>+</sup>		−2.3(12)		CER	1970McZQ
<sup>173</sup> <sub>70</sub> Yb	0	Stable	5/2 <sup>−</sup>	−0.648(3) −0.67989(3) 0.68002(3)		<sup>171</sup> <sub>70</sub> Yb <sup>23</sup> <sub>11</sub> Na <sup>35</sup> <sub>17</sub> Cl	CFBLS OP/RD N	1992Ku21 1972Ol01 1964Go06
					+2.80(4) a		Mu-X, O	1975Ze04 1964Ro11
	79	44 ps	7/2 <sup>−</sup>	−0.20(7)			IPAC	1983Ca99
	179	24 ps	9/2 <sup>−</sup>	+0.3(4)			IPAC	1983Ca99
	351	471 ps	7/2 <sup>+</sup>	−0.5(5)			IPAC	1983Ca99
<sup>174</sup> <sub>70</sub> Yb	77	1.79 ns	2 <sup>+</sup>	+0.676(8)		<sup>170</sup> <sub>70</sub> Yb 84	ME ME	1971He03 1971Pi03 1971He03
					−1.8(12)		CER	1970McZQ
	253	144 ps	4 <sup>+</sup>			<sup>169</sup> <sub>69</sub> Tm	TF	1979Wa15
	gs band	<12 <sup>+</sup>		$\alpha \times 10^3 = +0.3(15)$			TF	1980An27
	gs band	<16 <sup>+</sup>		$\alpha \times 10^3 = -1.3(10)$			TF	1980An27
<sup>175</sup> <sub>70</sub> Yb	0	4.18 d	7/2 <sup>−</sup>	0.768(8)		<sup>171</sup> <sub>70</sub> Yb	CFBLS	1992Ku21



Table 1 (continued)

Nucleus	$E$ (level)	$\tau_{1/2}$	$I^\pi$	$\mu$ (nm) <sup>*</sup>	$Q$ (b)	Ref. Std.	Method	Reference
<sup>177</sup> <sub>71</sub> Lu	127	3.68 h	1 <sup>−</sup>	+0.311(7) +0.3185(6) +0.318(3)	+4.92(3)	<sup>175</sup> <sub>71</sub> Lu	AB	1985Br09
					+4.97(3)	<sup>175</sup> <sub>71</sub> Lu	AB	1962Sp03
					5.07(7) a	<sup>175</sup> <sub>71</sub> Lu	Pi-X	1983Ol03
						<sup>175</sup> <sub>71</sub> Lu	CFBLS	1998Ge13
						<sup>175</sup> <sub>71</sub> Lu	AB, R	1998Ge13
	0	6.71 d	7/2 <sup>+</sup>	+2.239(7) +2.239(11) +2.2384(14)		<sup>175</sup> <sub>71</sub> Lu	AB, R	1975Mu15
					−1.450(12)	<sup>175</sup> <sub>71</sub> Lu	CFBLS	1998Ge13
					−1.47(1)	<sup>175</sup> <sub>71</sub> Lu	AB	1965Wh03
						<sup>175</sup> <sub>71</sub> Lu	CFBLS	1998Ge13
						<sup>175</sup> <sub>71</sub> Lu	AB, R	1975Mu15
	122	116 ps	9/2 <sup>+</sup>	+2.2(8)	+3.39(3)	<sup>175</sup> <sub>71</sub> Lu	CFBLS	1998Ge13
					+3.39(2)	<sup>175</sup> <sub>71</sub> Lu	AB	1962Pe07
							IPAC	1973Il02
							TDPAC	1977Ne11
						<sup>175</sup> <sub>71</sub> Lu	CFBLS	1998Ge13
	150	120 ns	9/2 <sup>−</sup>	+5.5(3)		<sup>177</sup> <sub>71</sub> Lu	NMR/ON	1996Ko26
						<sup>177</sup> <sub>71</sub> Lu	NO/S	1974Kr12
	970	160 d	23/2 <sup>−</sup>	+2.308(11) 2.337(13) 2.93(7)		<sup>177</sup> <sub>71</sub> Lu	NO/S	1975Sc16
<sup>178</sup> <sub>71</sub> Lu	0	28.4 m	1 <sup>+</sup>	−1.377(9)	+5.71(5)	<sup>175</sup> <sub>71</sub> Lu	CFBLS	1998Ge13
					5.2(5)	<sup>177</sup> <sub>71</sub> Lu	NMR/ON	1996Ko26
					4.2(7)	<sup>175</sup> <sub>71</sub> Lu	NO/S	1983Oe01
	120	23.1 m	9 <sup>−</sup>	+4.834(9)	+0.708(10)	<sup>175</sup> <sub>71</sub> Lu	CFBLS	1998Ge13
						<sup>175</sup> <sub>71</sub> Lu	CFBLS	1998Ge13
<sup>179</sup> <sub>71</sub> Lu	0	4.59 h	7/2 <sup>+</sup>	+2.375(12)	+5.39(5)	<sup>175</sup> <sub>71</sub> Lu	CFBLS	1998Ge13
					+3.32(3)	<sup>175</sup> <sub>71</sub> Lu	CFBLS	1998Ge13
							TF	1998We02
<sup>162</sup> <sub>72</sub> Hf	>Yrast	—	—	Average $g = +0.21(4)$			TF	1998We02
<sup>163</sup> <sub>72</sub> Hf	>Yrast	—	—	Average $g = +0.18(6)$			TF	1998We02
<sup>164</sup> <sub>72</sub> Hf	>Yrast	—	—	Average $g = +0.23(3)$			TF	1998We02
<sup>165</sup> <sub>72</sub> Hf	>Yrast	—	—	Average $g = +0.14(3)$			TF	1996We01
<sup>166</sup> <sub>72</sub> Hf	>Yrast	—	—	Average $g = +0.19(4)$			TF	1996We01
<sup>168</sup> <sub>72</sub> Hf	>1213	~1 ps	>6 <sup>+</sup>	Average $g = +0.07(4)$			IMPAC	1975Sk01
<sup>171</sup> <sub>72</sub> Hf	0	12.1 h	7/2 <sup>+</sup>	−0.674(12)			CFBLS	2000Ye02
					+3.46(3)		CFBLS	2000Ye02
<sup>172</sup> <sub>72</sub> Hf	22	29.5 s	1/2 <sup>−</sup>	+0.526(16)			CFBLS	2000Ye02
	>1037	~0.5 ps	>6 <sup>+</sup>	Average $g = +0.14(4)$			IMPAC	1975Sk01
	1685	4.8 ns	(6 <sup>+</sup> )	+5.6(6)			TDPAD	1980Wa23
	2006	163 ns	(8 <sup>−</sup> )	+7.96(7)			TDPAD	1980Wa23
<sup>173</sup> <sub>72</sub> Hf	0	23.6 h	1/2 <sup>−</sup>	+0.502(7)		<sup>177,9</sup> <sub>72</sub> Hf	CFBLS	1999Le11
	1984	19.5 ns	23/2 <sup>−</sup>	+6.6(2)			TDPAD	1980Wa23
<sup>174</sup> <sub>72</sub> Hf	1549	138 ns	(6 <sup>+</sup> )	+5.42(5)			TDPAD	1980Wa23
<sup>175</sup> <sub>72</sub> Hf	0	70 d	5/2 <sup>−</sup>	−0.677(9) −0.62(3) 0.54(3) 0.58(3)			LRS	2002Ni99
							LRS	1997Ji02
						<sup>178</sup> <sub>72</sub> Hf 93	NMR/ON	1986He10
						<sup>180</sup> <sub>72</sub> Hf 93	NMR/ON	1986He10
<sup>176</sup> <sub>72</sub> Hf	88	1.47 ns	2 <sup>+</sup>	+0.63(6) +0.54(4)	+2.72(2)		LRS	2002Ni99
					+2.6(2)		LRS	1997Ji02
					+2.8(4)	<sup>178</sup> <sub>72</sub> Hf 93	NO/S	1973Ka31
						<sup>180</sup> <sub>72</sub> Hf 93	IPAC	1996Al20
							CEAD	1968Be04
<sup>177</sup> <sub>72</sub> Hf	219	87.9 ps	4 <sup>+</sup>	+1.34(15)	−2.10(2) a		Mu-X	1984Ta10
							IPAC	1996Al20
							AB/D	1973Bu25
	0	Stable	7/2 <sup>−</sup>	+0.7935(6)				1973Bu07
					+3.37(3) a		Mu-X	1984Ta04
					+3.36(3)	<sup>179</sup> <sub>72</sub> Hf	AB	1973Bu25
	113	530 ps	9/2 <sup>−</sup>	+1.03(3) d			IPAC	1996Al20
							IPAC	1991De24
							IPAC, R	1975Hu15
	250	97 ps	11/2 <sup>−</sup>	+1.5(5)	1.30(2) a		Mu-X	1984Ta10
						<sup>177</sup> <sub>72</sub> Hf 113	IPAC	1968Br15

Table 1 (continued)

Nucleus	$E$ (level)	$\tau_{1/2}$	$I^\pi$	$\mu$ (nm)*	$Q$ (b)	Ref. Std.	Method	Reference
$^{178}_{72}\text{Hf}$	321	0.67(2) ns	$9/2^+$	$-0.73(9)$			IPAC	1969Hu06
	93	1.47 ns	$2^+$	$+0.48(3)$ $+0.60(4)$			CEAD	1968Be04
					$-2.02(2)$ a		IPAC	1962Ka14
	1147	4 s	$8^-$	$3(2)$			Mu-X	1984Ta10
	1554	77 ns	$6^+$	$+5.84(5)$ $+5.89(9)$			BFNO	1989Ra17
$^{179}_{72}\text{Hf}$	2446	31 y	$16^+$	$+8.16(4)$			TDPAD	1980Wa23
							TDPAD	1978Fa17
	0	Stable	$9/2^+$	$-0.6409(13)$		$^{177}_{72}\text{Hf}$ $^{177}_{72}\text{Hf}$	CFBLS	1994Bo15
					$+6.00(7)$		CFBLS	1994Bo15
					$+3.79(3)$ a		AB/D	1973Bu25
$^{180}_{72}\text{Hf}$	123	37 ps	$11/2^+$				Mu-X, AB	1984Ta04
	1106	25.1 d	$25/2^-$	$7.4(3)$				1973Bu25
	93	1.53 ns	$2^+$	$+0.61(3)$ $+0.51(8)$ $+0.53(3)$ $+0.77(7)$			Pi-X	1983OI03
					$+3.93(5)$ a		AB, R	1977Bu23
					$+5.3(5)$		Mu-X	1984Ta10
$^{181}_{73}\text{Ta}$	309	75.3 ps	$4^+$	$+1.4(2)$ $+2.0(4)$		$^{177}_{72}\text{Hf}$ 113	NO/S	1975Hu15
	641	9.0 ps	$6^+$	$+2.0(4)$			IPAC	1996Al20
	1142	5.5 h	$8^-$	$+8.7(10)$ $9.0(9)$		$^{178}_{72}\text{Hf}$ 93	ME	1972JhZZ
					$-2.00(2)$ a		CEAD	1968Be04
							IPAC	1961Bo25
$^{171}_{73}\text{Ta}$	184	45 ns	$9/2^-$				Mu-X	1984Ta10
	0	3.14 h	$5/2^-$	$1.70(3)$			IPAC	1996Al20
					$+4.6(3)$		IPAC	1961Bo25
					$(+ )3.1(2)$	$^{178}_{72}\text{Hf}$ 93	NO/S	1996Al20
						$^{181}_{73}\text{Ta}$	ME	1971Ko29
$^{173}_{73}\text{Ta}$	0	10.5 h	$7/2^+$	$2.27(5)$ $2.27(5)$			NO/S	1976Kr11
					$(- )1.9(2)$	$^{178}_{72}\text{Hf}$ 93	NO/S	1973Ka31
						$^{181}_{73}\text{Ta}$	TDPAD	1995Do32
						$^{181}_{73}\text{Ta}$ 482	NMR/ON	1991Ko25
						$^{181}_{73}\text{Ta}$	NO/S	1983Ed01
$^{175}_{73}\text{Ta}$	0	56.6 h	$7/2^+$	$2.25(5)$ $2.25(5)$			NMR/ON	1984Oh07
					$(+ )3.6(4)$	$^{181}_{73}\text{Ta}$ 482	NMR/ON	1984Ed01
						$^{181}_{73}\text{Ta}$	NO/S	1983Ed01
						$^{181}_{73}\text{Ta}$	NMR/ON	1984Oh07
						$^{181}_{73}\text{Ta}$	NMR/ON	1984Ed01
$^{177}_{73}\text{Ta}$	0	73 ns	$5/2^+$	$+4.8(5)$			PPDAC	1976Ao02
	186	2.78 $\mu\text{s}$	$5/2^-$	$+2.05(13)$				1974Ao01
	1355	5.0 $\mu\text{s}$	$21/2^-$	$+0.080(14)$			TDPAC	1978Be67
	0 + x	9.3 m	$1^+$	$2.740(12)$ $+2.8(2)$			IPAD	1982Ao04
					$+0.65(6)$	$^{181}_{73}\text{Ta}$ 482	NMR/ON	1987Ni05
$^{178}_{73}\text{Ta}$	0	1.82 y	$7/2^+$	$+2.289(9)$			NO/S	1978Ru05
					$+3.37(4)$	$^{181}_{73}\text{Ta}$	NO/S	1983Ha49
						$^{181}_{73}\text{Ta}$	LRS	1996Wa02
						$^{181}_{73}\text{Ta}$	LRS	1996Wa02
						$^{181}_{73}\text{Ta}$	LRS	1994Wa34
$^{179}_{73}\text{Ta}$	75	$>1.2 \times 10^{15}$ y	$9^-$	$+4.825(11)$ $4.77(5)$			ABLFS	1980Bu09
					$+4.95(2)$	$^{181}_{73}\text{Ta}$	LRS	1994Wa34
							N	1973Er17
								1960Be23
								1983OI03
$^{180}_{73}\text{Ta}$	0	Stable	$7/2^+$	$+2.3705(7)$			Pi-X	1981Ko11
					$+3.17(2)$ a		Mu-X	1981Ba07
					$+3.28(6)$ a		Pi-X	1981Ba07
					$+3.35(2)$ a		Ka-X	1981Ba07
					$+3.35(11)$ a		Pi-X	1978Be31
$^{181}_{73}\text{Ta}$					$+3.30(6)$ a		Mu-X	1977Po02
					$3.18(3)$ a		Mu-X	1976Mc03
					$3.44(6)$ a		Mu-X	1970Ka16
						$^{181}_{73}\text{Ta}$	ME	1968Sa07
						$^{181}_{73}\text{Ta}$	ME	1978Sa25
$^{182}_{73}\text{Ta}$	6	6.05 $\mu\text{s}$	$9/2^-$	$+5.28(9)$ $+5.47(2)$ $+5.3(2)$			ME	1978We18
					$+3.71(7)$	$^{181}_{73}\text{Ta}$	ME	1983Ei02
						$^{181}_{73}\text{Ta}$	IPAC	1983Ak02
						$^{182}_{73}\text{Ta}$	TDPAC, CDPAC	1964Ag02
								1963Ma10

(continued on next page)

Table 1 (continued)

Nucleus	$E$ (level)	$\tau_{1/2}$	$I^\pi$	$\mu$ (nm) <sup>*</sup>	$Q$ (b)	Ref. Std.	Method	Reference
<sup>182</sup> <sub>73</sub> Ta	717	3.0 ps	15/2 <sup>+</sup>	+2(2)	+2.35(6)	<sup>181</sup> <sub>73</sub> Ta	TDPAC	
	965	1.93 ps	17/2 <sup>+</sup>	+4(2)			TF	1996HaZT
	1239	1.12 ps	19/2 <sup>+</sup>	+4(5)			TF	1996HaZT
	0	115 d	3 <sup>-</sup>	3.02(3) (+)-3.02(6)			NMR/ON	1980Al27
<sup>183</sup> <sub>73</sub> Ta	0	5.1 d	7/2 <sup>+</sup>	(+)2.36(3)	+2.6(3)	<sup>181</sup> <sub>73</sub> Ta	NMR/ON	1980De22
							NO/S	1991Fa12
<sup>168</sup> <sub>74</sub> W	199	213 ps	2 <sup>+</sup>	+0.50(10)			NMR/ON	1984Ed01
	562	12 ps	4 <sup>+</sup>	+1.4(8)			IMPAD	1980Al27
	2272	61 ps	12 <sup>+</sup>	-2.5(8)			IMPAD	1986Bi11
<sup>175</sup> <sub>74</sub> W	235	216 ns	7/2 <sup>+</sup>	-0.65(2)	5.2 < $Q$ < 6.8 3.2 < $Q$ < 5.1 2.3 < $Q$ < 8.0 <7	Calc efg	IMPAD	1986Bi11
<sup>176</sup> <sub>74</sub> W	3746	41 ns	14 <sup>+</sup>	+6.7(2)			TDPAD	2000Io03
							TDPAD	2000Io03
<sup>179</sup> <sub>74</sub> W	3348	750 ns	35/2 <sup>-</sup>		2.1(4)	<sup>180</sup> <sub>74</sub> W 100 <sup>180</sup> <sub>74</sub> W 100	LEMS	2002Io01
<sup>180</sup> <sub>74</sub> W	104	1.22 ns	2 <sup>+</sup>	0.51(3)			LEMS	2001Ba04
							LEMS	1999Vy01
							LEMS	1997Ne04
<sup>182</sup> <sub>74</sub> W	100	1.37 ns	2 <sup>+</sup>	0.52(2) +0.528(12)	-2.1(4)	<sup>180</sup> <sub>74</sub> W 100 <sup>183</sup> <sub>74</sub> W	ME	1973Zi02
							ME	1973Zi02
							CEAD	1972He01
							CER	1968Pe06
<sup>183</sup> <sub>74</sub> W	329	64 ps	4 <sup>+</sup>	+0.9(2)		<sup>180</sup> <sub>74</sub> W 100 <sup>2</sup> <sub>1</sub> H	IPAC	1977RuZV
	1289	1.12 ns	2 <sup>-</sup>	+1.7(2)			IPAC	1972Be94
	1374	78 ps	3 <sup>-</sup>	1.0(3) 2.2(3)			IPAC	1973Se14
							IPAC	1972He10
<sup>184</sup> <sub>74</sub> W	0	Stable	1/2 <sup>-</sup>	+0.11778476(9)	1.8(4)	<sup>180</sup> <sub>74</sub> W 100 <sup>183</sup> <sub>74</sub> W	N	1973Se14
	47	184 ps	3/2 <sup>-</sup>	-0.1(1)			ME	1974Sa25
							ME	1967Ag02
							ME, R, CEAD	1967Ag02
<sup>184</sup> <sub>74</sub> W	99	0.71 ns	5/2 <sup>-</sup>	+0.91(4)	2.0(3)	<sup>180</sup> <sub>74</sub> W 100 <sup>184</sup> <sub>74</sub> W 111 <sup>184</sup> <sub>74</sub> W 111 <sup>184</sup> <sub>74</sub> W 111 <sup>184</sup> <sub>74</sub> W 111 <sup>184</sup> <sub>74</sub> W 111 <sup>184</sup> <sub>74</sub> W 111	ME, R, CEAD	1968Pe06
							ME	1967Gi03
							ME	1967Ag02
							ME	1974Ge17
<sup>184</sup> <sub>74</sub> W	207	—	7/2 <sup>-</sup>	0.4(2)	-1.9(2)	<sup>184</sup> <sub>74</sub> W 111 <sup>184</sup> <sub>74</sub> W 111 <sup>184</sup> <sub>74</sub> W 111 <sup>184</sup> <sub>74</sub> W 111	TF	1992La02
	309	—	9/2 <sup>-</sup>	1.53(14)			TF	1992La02
	475	—	11/2 <sup>-</sup>	1.1(2)			TF	1992La02
	551	—	9/2 <sup>-</sup>	2.2(9)			TF	1992La02
<sup>184</sup> <sub>74</sub> W	631	10 ps	13/2 <sup>-</sup>	2.6(3)	+0.1(4)	<sup>184</sup> <sub>74</sub> W 111 <sup>184</sup> <sub>74</sub> W 111 <sup>184</sup> <sub>74</sub> W 111 <sup>184</sup> <sub>74</sub> W 111	TF	1992La02
	1062	3.0 ps	17/2 <sup>-</sup>	2.6(7)			TF	1992La02
	111	1.25 ns	2 <sup>+</sup>	+0.578(14) +0.576(14)			IPAC	1984Al06
							CEAD	1972Ca12
<sup>186</sup> <sub>74</sub> W	364	46 ps	4 <sup>+</sup>	+1.17(9)	+0.1(4)	<sup>184</sup> <sub>74</sub> W 111 <sup>184</sup> <sub>74</sub> W 364 <sup>184</sup> <sub>74</sub> W 111 <sup>184</sup> <sub>74</sub> W 364	CER	1977RuZV
	748	5.5 ps	6 <sup>+</sup>	+1.9(2) +1.8(3)			IPAC, R	1984Al06
							TF	1985St18
	904	1.73 ps	2 <sup>+</sup>	+0.24(8)			IPAC, R	1984Al06
<sup>186</sup> <sub>74</sub> W	1252	1.32 ps	8 <sup>+</sup>	+2.9(6)	-1.6(3)	<sup>184</sup> <sub>74</sub> W 364 <sup>180</sup> <sub>74</sub> W 100	TF	1985St18
	123	1.05 ns	2 <sup>+</sup>	0.62(3) +0.62(2)			TF	1991St04
							ME, RIGV	1968Pe06
							ME, RIGV	1970Be36
<sup>187</sup> <sub>74</sub> W	396	36 ps	4 <sup>+</sup>	+1.28(10)	-2.6(13)	<sup>186</sup> <sub>74</sub> W 123 <sup>186</sup> <sub>74</sub> W 123	CER	1977RuZV
							TF	1985St07
							CER	1970McZQ
							TF	1985St07
<sup>179</sup> <sub>75</sub> Re	737	4.4 ps	2 <sup>+</sup>	+0.39(8)	1.2(3) +1.3(3) 0.7(4)	<sup>186</sup> <sub>74</sub> W 123	CER	1977Ob02
							CER	1977Mc11
							CER	1970McZQ
							CER	1970McZQ
<sup>187</sup> <sub>74</sub> W	809	3.5 ps	6 <sup>+</sup>	+1.9(4)		<sup>186</sup> <sub>74</sub> W 123	TF	1985St07
<sup>179</sup> <sub>75</sub> Re	0	23.9 h	3/2 <sup>-</sup>	0.621(15)			NMR/ON	1987Oh10
<sup>180</sup> <sub>75</sub> Re	0	19.7 m	(5/2) <sup>+</sup>	2.8(4)			NO/S	1992Bo39
<sup>180</sup> <sub>75</sub> Re	0	2.4 m	(1) <sup>-</sup>	1.6(2)			NO/S	1992Bo39

Table 1 (continued)

Nucleus	$E$ (level)	$\tau_{1/2}$	$I^\pi$	$\mu$ (nm) <sup>*</sup>	$Q$ (b)	Ref. Std.	Method	Reference
<sup>181</sup> <sub>75</sub> Re	0	19.9 h	5/2 <sup>+</sup>	3.19(7)		<sup>185,7</sup> <sub>75</sub> Re	NMR/ON	1981Ha22
	357	76 ns	5/2 <sup>−</sup>	+2.03(10)			TDPAC	1978Be67
<sup>182</sup> <sub>75</sub> Re	0	64.0 h	7 <sup>+</sup>	2.84(6)		<sup>185,7</sup> <sub>75</sub> Re	NMR/ON	1981Ha22
				2.83(6)		<sup>185,7</sup> <sub>75</sub> Re	NO/S	1980Sp01
					+4.1(3)	<sup>187</sup> <sub>75</sub> Re	NO/S	1983Ha49
	0 + x	12.7 h	2 <sup>+</sup>	3.26(10)		<sup>185,7</sup> <sub>75</sub> Re	NMR/ON	1987Oh10
				3.2(3)		<sup>185,7</sup> <sub>75</sub> Re	NO/S	1980Sp01
					+1.8(2)	<sup>187</sup> <sub>75</sub> Re	NO/S, R	1985Ha41
								1981Er01
	236	570 ns	2 <sup>−</sup>	+2.15(8)			TDPAC	1978Be67
<sup>183</sup> <sub>75</sub> Re	2256	82 ns	16 <sup>−</sup>	+3.82(13)			TDPAD	1988Ja02
	0	70.0 d	5/2 <sup>+</sup>	3.168(15)		<sup>186</sup> <sub>75</sub> Re	NMR/ON	1987Oh10
				+3.160(13)		<sup>186</sup> <sub>75</sub> Re	NMR/ON, R	1987Oh10
					+2.3(2)	<sup>187</sup> <sub>75</sub> Re	NO/S	1983Ha49
					+2.1(2)	<sup>187</sup> <sub>75</sub> Re	NO/S, R	1985Ha41
								1981Er01
	497	7 ns	9/2 <sup>−</sup>	+5.14(11)		<sup>19</sup> <sub>9</sub> F 197	TDPAD	1980Za09
<sup>184</sup> <sub>75</sub> Re	0	38.0 d	3 <sup>−</sup>	(+)2.53(5)	(+)3.8(3)	<sup>187</sup> <sub>75</sub> Re	TDPAC	1978Ne14
						<sup>185,7</sup> <sub>75</sub> Re	NMR/ON	1981Ha22
					+2.9(2)	<sup>187</sup> <sub>75</sub> Re	NO/S	1983Ha49
					+3.1(3)	<sup>187</sup> <sub>75</sub> Re	NO/S	1981Er01
	188	169 d	8 <sup>+</sup>	(+)2.88(10)			NO/S	1973Hu06
<sup>185</sup> <sub>75</sub> Re	0	Stable	5/2 <sup>+</sup>	+3.1871(3)		<sup>23</sup> <sub>11</sub> Na	N	1951Al11
					+2.18(2) a		Pi-X, O	1981Ko11
								1966Ku07
					2.21(4) a		Mu-X	1981Ko11
					2.19(2)	<sup>187</sup> <sub>75</sub> Re	Q	1978Se09
<sup>186</sup> <sub>75</sub> Re	125	10.2 ps	7/2 <sup>+</sup>	+2.1(8)			PAC	1989Ra17
	0	90.6 h	1 <sup>−</sup>	+1.739(3)			AB/D	1965Ar01
					+0.618(6)	<sup>187</sup> <sub>75</sub> Re	AB	1981Bu13
								1965Ar01
					+0.60(6)	<sup>187</sup> <sub>75</sub> Re	NO/S	1983Ha49
					+0.54(9)	<sup>187</sup> <sub>75</sub> Re	NO/S, R	1985Ha41
								1983Oe01
	314	23.1 ns	3 <sup>+</sup>	+2.18(6)		<sup>19</sup> <sub>9</sub> F 197	TDPAD	1980Za09
<sup>187</sup> <sub>75</sub> Re	330	17.8 ns	5 <sup>+</sup>	+4.62(11)		<sup>19</sup> <sub>9</sub> F 197	TDPAD	1980Za09
	0	4 × 10 <sup>10</sup> y	5/2 <sup>+</sup>	+3.2197(3)		<sup>23</sup> <sub>11</sub> Na	N	1951Al11
					+2.07(2) a		Pi-X, O	1981Ko11
								1966Ku07
					2.09(4) a		Mu-X	1981Ko11
	134	9.9 ps	7/2 <sup>+</sup>	+1.9(9)			PAC	1989Ra17
	206	555 ns	9/2 <sup>−</sup>	+5.11(9)			TDPAC	1978Be67
				+5.02(5)			TDPAC	1963Ko19
								1971Ni01
								1963Wa16
<sup>188</sup> <sub>75</sub> Re	0	16.9 h	1 <sup>−</sup>	+1.788(5)	3.04(5)	<sup>187</sup> <sub>75</sub> Re	TDPAC	
					+0.572(6)		AB/D	1965Ar01
					+0.36(16)	<sup>187</sup> <sub>75</sub> Re	AB	1981Bu13
						<sup>187</sup> <sub>75</sub> Re	NO/S	1983Oe01
<sup>182</sup> <sub>76</sub> Os	7049	150 ns	25 <sup>(+)</sup>	+10.6(2)	4.2(2)		TDPAD	1989Al19
							TDPAD	1991Br25
<sup>183</sup> <sub>76</sub> Os	0	13.0 h	9/2 <sup>+</sup>	(−)0.794(14)			NMR/ON	1980Ha24
					+3.1(3)	<sup>186</sup> <sub>76</sub> Os 137	NO/S	1985Ha41
<sup>184</sup> <sub>76</sub> Os	120	1.18 ns	2 <sup>+</sup>		−2.4(11)		CER	1972La16
<sup>186</sup> <sub>76</sub> Os	137	830 ps	2 <sup>+</sup>	+0.56(2)			ME, CEAD	1970Wa06
				+0.52(3)			TF	1982Le02
					−1.63(4) a		Mu-X	1981Ho22
					−1.61(5)	<sup>188</sup> <sub>76</sub> Os 155	ME	1972Wa24
					−1.2(2)		CER	1979RuZP
	1775	10.4 ns	7 <sup>−</sup>	−0.22(14)			TDPAD	1984Go06
<sup>187</sup> <sub>76</sub> Os	0	Stable	1/2 <sup>−</sup>	+0.06465189(6)		<sup>2</sup> <sub>1</sub> H	N	1974Sa25
				+0.0665(6)		<sup>189</sup> <sub>76</sub> Os	O	1962Jp99

(continued on next page)

Table 1 (continued)

Nucleus	$E$ (level)	$\tau_{1/2}$	$I^{\pi}$	$\mu$ (nm) <sup>*</sup>	$Q$ (b)	Ref. Std.	Method	Reference
<sup>188</sup> <sub>76</sub> Os	155	710 ps	$2^+$	+0.58(2) 0.61(3) +0.60(3)	−1.46(4) a −1.33(10) −1.2(3)		IMPAC, R	1985St05
							ME	1970Wa06
							TF	1982Le02
							Mu-X	1981Ho22
							CER	1979RuZP
							CER	1980Ba42
	478	19 ps	$4^+$	+1.43(14)	+1.0(3)	<sup>188</sup> <sub>76</sub> Os 155	TF	1985St05
	633	6.3 ps	$2^+$	+0.78(7)		<sup>188</sup> <sub>76</sub> Os 155	TF	1985St05
							CER	1980Ba42
	940	2.3 ps	$6^+$	+2.5(4)		<sup>188</sup> <sub>76</sub> Os 155	TF	1985St05
	966	5.2 ps	$4^+$	+1.6(5)		<sup>188</sup> <sub>76</sub> Os 155	TF	1985St05
	1771	13.9 ps	$7^-$	−0.17(11)			TDPAD	1984Go06
<sup>189</sup> <sub>76</sub> Os	2121		$(3^-)$		1.69(9) a		Mu-X	1979Ho23
	0	Stable	$3/2^-$	+0.659933(4)		<sup>1</sup> H	N	1954Lo36
					+0.98(6)		LRFS	2002Kr01
					+0.86(3)	<sup>188</sup> <sub>76</sub> Os 155	ME	1972Wa24
	36	0.50 ns	$1/2^-$	+0.23(3)		<sup>189</sup> <sub>76</sub> Os	ME	1969Wa02
	70	1.63 ns	$5/2^-$	+0.988(6)		<sup>189</sup> <sub>76</sub> Os	ME, IPAC	1972Wa24 1968Pe09
					−0.63(2)	<sup>189</sup> <sub>76</sub> Os	ME	1972Wa24
<sup>190</sup> <sub>76</sub> Os	95	0.23 ns	$3/2^-$	−0.32(5)			IPAC	1989Ra17
	187	366 ps	$2^+$	+0.69(3) +0.70(2)			TF	1992St06
					−1.18(3) a −1.26(8)	<sup>188</sup> <sub>76</sub> Os 155	IMPAC, R Mu-X	1985St05 1981Ho22
					1.00(10)		ME	1972Wa24
					−1.0(3)	<sup>188</sup> <sub>76</sub> Os 155	CER	1979RuZP
	548	14 ps	$4^+$	+1.6(2)		<sup>188</sup> <sub>76</sub> Os 155	CER	1980Ba42
	558	12.5 ps	$2^+$	+0.69(9)		<sup>190</sup> <sub>76</sub> Os 187	TF	1985St05
					+0.9(4)	<sup>190</sup> <sub>76</sub> Os 187	TF	1985St05
	1705	9.9 m	$10^-$	−0.56(+8, −12)			CER	1980Ba42
	0	15.4 d	$9/2^-$	+0.96(3)	+2.5(2)	<sup>186</sup> <sub>76</sub> Os 137	RENO NMR/ON( $\beta$ ) NO/S, ME	1987Be54 1996Oh03 1979Er09
<sup>192</sup> <sub>76</sub> Os	206	289 ps	$2^+$	+0.79(2)	−0.96(3) a −0.8(2) −0.60(13) −0.9(2)		IMPAC, R Mu-X CER CER CER	1985St05 1981Ho22 1983Ch35 1979RuZP 1988Li22
	489	30.1 ps	$2^+$	+0.58(4)		<sup>192</sup> <sub>76</sub> Os 206	TF	1985St05
					−0.8(3)	<sup>188</sup> <sub>76</sub> Os 155 <sup>192</sup> <sub>76</sub> Os 206	CER TF	1980Ba42 1985St05
	580	13.4 ps	$4^+$	+1.56(12)				1983Bo13
	910	18 ps	$4^+$	+1.7(4)		<sup>192</sup> <sub>76</sub> Os 206	TF	1985St05
	0	30.5 h	$3/2^-$	0.730(2) Sign positive +0.75(3) 0.78(7)	+0.47(6)	<sup>186</sup> <sub>76</sub> Os 137	NMR/ON NO/CP NO/ME, R NO/S, R R, NO/S	1989Ed01 1991Sc28 1985Be03 1984Gh01 1985Be03
<sup>180</sup> <sub>77</sub> Ir	0	1.5 m	Unknown	2.2(2) [ $I = 3$ ] 2.39(13) [ $I = 4$ ] 2.5(2) [ $I = 5$ ] 2.6(2) [ $I = 6$ ] 2.6(2) [ $I = 7$ ]			NO/S NO/S NO/S NO/S NO/S	1979Er09 1992Bo39 1992Bo39 1992Bo39 1992Bo39
	<sup>182</sup> <sub>77</sub> Ir	15 m	Unknown	1.91(9) [ $I = 2$ ]			NO/S	1992Bo39
				2.10(9) [ $I = 3$ ]			NO/S	1992Bo39
				2.21(8) [ $I = 4$ ]			NO/S	1992Bo39
				2.28(8) [ $I = 5$ ]			NO/S	1992Bo39
				2.08(15) [ $I = 5$ ]			NO/S	1992Bo39
				2.33(8) [ $I = 6$ ]			NO/S	1992Bo39
				2.37(8) [ $I = 7$ ]			NO/S	1992Bo39
				2.36(8) [ $I = 5/2$ ]			NO/S	1992Bo39
							NO/S	1992Bo39
							NO/S	1992Bo39
<sup>183</sup> <sub>77</sub> Ir	0	55 m	$5/2^-, 7/2^-$				NO/S	1992Bo39



Table 1 (continued)

Nucleus	$E$ (level)	$\tau_{1/2}$	$I^\pi$	$\mu$ (nm) <sup>*</sup>	$Q$ (b)	Ref. Std.	Method	Reference
<sup>184</sup> <sub>77</sub> Ir	0	3.14 h	5 <sup>−</sup>	2.63(9) [ $I = 7/2$ ]			NO/S	1992Bo39
				2.2(6) [ $I = 5/2$ ]			NO/S	1992Bo39
				2.1(3) [ $I = 7/2$ ]			NO/S	1992Ro21
				0.696(5)			NMR/ON	1988Oh02
				0.8(2)			NO/S	1981Sp06
				+2.41(3)	<sup>189</sup> <sub>77</sub> Ir	NMR/ON	1996Se15	
<sup>185</sup> <sub>77</sub> Ir	0	14.4 h	5/2 <sup>−</sup>		+2.0(3)	<sup>189</sup> <sub>77</sub> Ir	NO/S	1982Al34
					+2.1(4)	<sup>189</sup> <sub>77</sub> Ir	NO/S	1981Ha33
				2.605(13)			NMR/ON	1988Oh02
				2.601(14)			NMR/ON	1986De02
				2.5(2)			NO/S	1985Va07
				2.6(2)			NO/S	1981Sp06
<sup>186</sup> <sub>77</sub> Ir	0	16.64 h	5 <sup>+</sup>		−2.06(14)	<sup>193</sup> <sub>77</sub> Ir	NMR/ON	1988Oh02
					−1.9(3)	<sup>193</sup> <sub>77</sub> Ir	NMR/ON	1986De02
					−2.5(3)	<sup>193</sup> <sub>77</sub> Ir	NO/S	1982Al34
					−1.9(3)	<sup>193</sup> <sub>77</sub> Ir	NO/S	1981Ha33
				3.88(5)			NO/S	1982Al11
				3.80(+12, −2)			NMR/ON	1980Ha49
<sup>187</sup> <sub>77</sub> Ir	0	10.5 h	3/2 <sup>+</sup>	3.78(5)			NMR/ON	1981Sp06
					−2.55(3)	<sup>189</sup> <sub>77</sub> Ir	NMR/ON	1996Se15
					−2.5(2)	<sup>189</sup> <sub>77</sub> Ir	NO/S	1980Mu07
					−2.3(2)	<sup>189</sup> <sub>77</sub> Ir	NO/S, ME	1979Er06
					−2.89(10)	<sup>189</sup> <sub>77</sub> Ir	NMR/ON	1980Ha49
					+1.46(2)	<sup>189</sup> <sub>77</sub> Ir	NMR/ON	1996Se15
<sup>188</sup> <sub>77</sub> Ir	0	40.5 h	1 <sup>(−)</sup>		+0.941(11)	<sup>189</sup> <sub>77</sub> Ir	NMR/ON	1996Se15
							TDPAD	1977Ha99
					3.1(3)	<sup>193</sup> <sub>77</sub> Ir	TDPAD	1977Ha99
					+0.484(6)	<sup>189</sup> <sub>77</sub> Ir	NMR/ON, NO/S	1985Ed02
					+0.54(2)	<sup>193</sup> <sub>77</sub> Ir	NMR/ON	1996Se15
					+0.49(3)	<sup>193</sup> <sub>77</sub> Ir	NMR/ON	1985Ed02
<sup>189</sup> <sub>77</sub> Ir	0	13.1 d	3/2 <sup>+</sup>	0.13(+8, −4)		<sup>188</sup> <sub>77</sub> Ir	NMR/ON	1988Oh05
						<sup>188</sup> <sub>77</sub> Ir	NO/S	1980Be27
					+0.878(10)		NMR/ON	1996Se15
					+0.79(6)	<sup>188</sup> <sub>77</sub> Ir	NO/S	1992Ka49
					+1.0(2)	<sup>192</sup> <sub>77</sub> Ir	NO/S	1985Ha41
					+2.85(14)	<sup>189</sup> <sub>77</sub> Ir	NO/S	1983Al15
<sup>190</sup> <sub>77</sub> Ir	0	11.8 d	(4) <sup>+</sup>		+2.7(2)	<sup>192</sup> <sub>77</sub> Ir	NO/S	1980Mu07
							NO/S	1985Ha41
							AB/D	1984Bu15
							N	1968Na01
					+0.816(9) a		Mu-X, O	1984Ta04
					+0.8(2) st			1952Mu40
<sup>191</sup> <sub>77</sub> Ir	82	3.8 ns	1/2 <sup>+</sup>	+0.600(6)		<sup>191</sup> <sub>77</sub> Ir	AB	1978Bu17
				+0.81(6)			ME, R	1983Wa31
				+0.86(6)			TF	2000Be07
				+0.45(2)		<sup>198</sup> <sub>78</sub> Pt 407	TF	1996St22
				+0.48(4)			IMPAC, TF, R	1986Ko20
				6.03(4)			IPAD, ME	1980Da24
<sup>192</sup> <sub>77</sub> Ir	171	4.9 s	11/2 <sup>−</sup>				NMR/ON	1974Kr06
								1971Es03
							NO/CP	1991Sc28
							NMR/ON(β)	1996Oh03
							IPAC	1973Il02
							TF	2000Be07
<sup>193</sup> <sub>77</sub> Ir	179	39 ps	3/2 <sup>+</sup>	+1.35(11)		<sup>198</sup> <sub>78</sub> Pt 407	TF	1996St22
				+1.40(6)		<sup>191</sup> <sub>77</sub> Ir 129	TF, IMPAC	1986Ko20
				+1.7(3)		<sup>198</sup> <sub>78</sub> Pt 407	TF	1996St22
				+2.4(2)		<sup>191</sup> <sub>77</sub> Ir 129	TF	1986Ko20
				+3.1(11)		<sup>198</sup> <sub>78</sub> Pt 407	TF	1996St22
				+0.8(3)		<sup>191</sup> <sub>77</sub> Ir 129	TF	1986Ko20
<sup>194</sup> <sub>77</sub> Ir	343	20 ps	7/2 <sup>+</sup>	+0.5(7)		<sup>198</sup> <sub>78</sub> Pt 407	TF	1996St22
				+3.4(9)		<sup>191</sup> <sub>77</sub> Ir 129	TF	1986Ko20
				1.924(10)		<sup>198</sup> <sub>78</sub> Pt 407	TF	1996St22
						<sup>191</sup> <sub>77</sub> Ir	NMR/ON	1980Ha25



Table 1 (continued)

Nucleus	$E$ (level)	$\tau_{1/2}$	$I^\pi$	$\mu$ (nm) <sup>*</sup>	$Q$ (b)	Ref. Std.	Method	Reference
<sup>190</sup> Pt	296	60 ps	2 <sup>+</sup>	−0.440(8)	−0.87(8) st	<sup>195</sup> <sub>78</sub> Pt	LRIMS	1992Hi07
				0.439(9)		<sup>195</sup> <sub>78</sub> Pt	NMR/ON	1985Ed05
				0.433(9)		<sup>195</sup> <sub>78</sub> Pt	NMR/ON	1985Oh05
				0.42(3)		<sup>195</sup> <sub>78</sub> Pt	NO/S	1980Be27
				<sup>195</sup> <sub>78</sub> Pt		LRIMS	2000SaZQ	
				−1.03(5)		<sup>195</sup> <sub>78</sub> Pt	LRIMS	1989Du01
				−1.21(6)		<sup>191</sup> <sub>78</sub> Pt	QI-NMR/ON	1998Hi08
				−1.27(3)		<sup>191</sup> <sub>78</sub> Pt	NMR/ON	1993HaZU
				−1.1(2) st		<sup>195</sup> <sub>78</sub> Pt	LRIMS	1992Hi07
	2297	69 ns	10 <sup>−</sup>	+0.57(3)	−0.78(10) st	<sup>194</sup> <sub>78</sub> Pt 328, <sup>196</sup> <sub>78</sub> Pt 356	TF	1995An15
				+0.09(8)		<sup>195</sup> <sub>78</sub> Pt	IPAC	2001Ko41
				−0.501(5)		<sup>195</sup> <sub>78</sub> Pt	LRIMS	1989Du01
				−0.494(8)		<sup>195</sup> <sub>78</sub> Pt	LRIMS	1992Hi07
				0.500(10)		<sup>195</sup> <sub>78</sub> Pt	NMR/ON	1985Ed05
				0.499(10)		<sup>195</sup> <sub>78</sub> Pt	NMR/ON	1985Oh05
				0.506(11)		<sup>195</sup> <sub>78</sub> Pt	NMR/ON, NO/S	1981La25
				−0.46(+14, −4)		<sup>195</sup> <sub>78</sub> Pt	NO/S, NO/ME	1980Be27
				<sup>191</sup> Pt		0	2.9 d	3/2 <sup>−</sup>
<sup>195</sup> <sub>78</sub> Pt	LRIMS	2000SaZQ						
<sup>195</sup> <sub>78</sub> Pt	LRIMS	1989Du01						
<sup>195</sup> <sub>78</sub> Pt	LRIMS	1992Hi07						
<sup>195</sup> <sub>78</sub> Pt	LRIMS	1992Hi07						
<sup>195</sup> <sub>78</sub> Pt	LRIMS	1992Hi07						
<sup>195</sup> <sub>78</sub> Pt	LRIMS	1992Hi07						
<sup>195</sup> <sub>78</sub> Pt	LRIMS	1992Hi07						
<sup>195</sup> <sub>78</sub> Pt	LRIMS	1992Hi07						
317	43.7 ps	2 <sup>+</sup>	+0.57(3)		−0.78(10) st	<sup>195</sup> <sub>78</sub> Pt	LRIMS	1987Be36
						<sup>195</sup> <sub>78</sub> Pt	LRIMS	2000SaZQ
						<sup>195</sup> <sub>78</sub> Pt	LRIMS	1989Du01
						<sup>195</sup> <sub>78</sub> Pt	LRIMS	1992Hi07
						<sup>195</sup> <sub>78</sub> Pt	LRIMS	1992Hi07
						<sup>195</sup> <sub>78</sub> Pt	LRIMS	1992Hi07
						<sup>195</sup> <sub>78</sub> Pt	LRIMS	1992Hi07
						<sup>195</sup> <sub>78</sub> Pt	LRIMS	1992Hi07
						<sup>195</sup> <sub>78</sub> Pt	LRIMS	1992Hi07
<sup>192</sup> Pt	612	26.5 ps	2 <sup>+</sup>	+0.56(9)	+0.6(2)	<sup>194</sup> <sub>78</sub> Pt 328, <sup>196</sup> <sub>78</sub> Pt 356	TF	1992Br03
						<sup>194</sup> <sub>78</sub> Pt 328, <sup>196</sup> <sub>78</sub> Pt 356	IPAC	1975Ka42
						<sup>194</sup> <sub>78</sub> Pt 328, <sup>196</sup> <sub>78</sub> Pt 356	CER	1987Gy01
						<sup>194</sup> <sub>78</sub> Pt 328, <sup>196</sup> <sub>78</sub> Pt 356	CER	1987Gy01
						<sup>194</sup> <sub>78</sub> Pt 328, <sup>196</sup> <sub>78</sub> Pt 356	TF	1992Br03
						<sup>194</sup> <sub>78</sub> Pt 328, <sup>196</sup> <sub>78</sub> Pt 356	IPAC	1975Ka42
						<sup>194</sup> <sub>78</sub> Pt 328, <sup>196</sup> <sub>78</sub> Pt 356	TF	1992Br03
						<sup>194</sup> <sub>78</sub> Pt 328, <sup>196</sup> <sub>78</sub> Pt 356	IPAC	1975Ka42
						<sup>194</sup> <sub>78</sub> Pt 328, <sup>196</sup> <sub>78</sub> Pt 356	TF	1992Br03
	785	4.2 ps	4 <sup>+</sup>	+0.72(14)	+0.62(6)	<sup>194</sup> <sub>78</sub> Pt 328, <sup>196</sup> <sub>78</sub> Pt 356	TF	1992Br03
						<sup>194</sup> <sub>78</sub> Pt 328, <sup>196</sup> <sub>78</sub> Pt 356	IPAC	1975Ka42
						<sup>194</sup> <sub>78</sub> Pt 328, <sup>196</sup> <sub>78</sub> Pt 356	TF	1992Br03
						<sup>194</sup> <sub>78</sub> Pt 328, <sup>196</sup> <sub>78</sub> Pt 356	IPAC	1975Ka42
						<sup>194</sup> <sub>78</sub> Pt 328, <sup>196</sup> <sub>78</sub> Pt 356	TF	1992Br03
						<sup>194</sup> <sub>78</sub> Pt 328, <sup>196</sup> <sub>78</sub> Pt 356	IPAC	1975Ka42
						<sup>194</sup> <sub>78</sub> Pt 328, <sup>196</sup> <sub>78</sub> Pt 356	TF	1992Br03
						<sup>194</sup> <sub>78</sub> Pt 328, <sup>196</sup> <sub>78</sub> Pt 356	IPAC	1975Ka42
						<sup>194</sup> <sub>78</sub> Pt 328, <sup>196</sup> <sub>78</sub> Pt 356	TF	1992Br03
2172	404 ns	10 <sup>−</sup>	+0.10(6)	+0.48(14)	<sup>195</sup> <sub>78</sub> Pt	LRIMS	1992Hi07	
					<sup>195</sup> <sub>78</sub> Pt	LRIMS	1992Hi07	
					<sup>195</sup> <sub>78</sub> Pt	LRIMS	1992Hi07	
					<sup>195</sup> <sub>78</sub> Pt	LRIMS	1992Hi07	
					<sup>195</sup> <sub>78</sub> Pt	LRIMS	1992Hi07	
					<sup>195</sup> <sub>78</sub> Pt	LRIMS	1992Hi07	
					<sup>195</sup> <sub>78</sub> Pt	LRIMS	1992Hi07	
					<sup>195</sup> <sub>78</sub> Pt	LRIMS	1992Hi07	
					<sup>195</sup> <sub>78</sub> Pt	LRIMS	1992Hi07	
<sup>193</sup> Pt	0	50 y	1/2 <sup>−</sup>	+0.603(8)	+0.406(12)	<sup>195</sup> <sub>78</sub> Pt	LRIMS	1992Hi07
						<sup>195</sup> <sub>78</sub> Pt	LRIMS	1992Hi07
						<sup>195</sup> <sub>78</sub> Pt	LRIMS	1992Hi07
						<sup>195</sup> <sub>78</sub> Pt	LRIMS	1992Hi07
						<sup>195</sup> <sub>78</sub> Pt	LRIMS	1992Hi07
						<sup>195</sup> <sub>78</sub> Pt	LRIMS	1992Hi07
						<sup>195</sup> <sub>78</sub> Pt	LRIMS	1992Hi07
						<sup>195</sup> <sub>78</sub> Pt	LRIMS	1992Hi07
						<sup>195</sup> <sub>78</sub> Pt	LRIMS	1992Hi07
	150	4.3 d	13/2 <sup>+</sup>	(−)0.753(15)	+0.60(3)	<sup>195</sup> <sub>78</sub> Pt	LRIMS	1992Hi07
						<sup>195</sup> <sub>78</sub> Pt	LRIMS	1992Hi07
						<sup>195</sup> <sub>78</sub> Pt	LRIMS	1992Hi07
						<sup>195</sup> <sub>78</sub> Pt	LRIMS	1992Hi07
						<sup>195</sup> <sub>78</sub> Pt	LRIMS	1992Hi07
						<sup>195</sup> <sub>78</sub> Pt	LRIMS	1992Hi07
						<sup>195</sup> <sub>78</sub> Pt	LRIMS	1992Hi07
						<sup>195</sup> <sub>78</sub> Pt	LRIMS	1992Hi07
						<sup>195</sup> <sub>78</sub> Pt	LRIMS	1992Hi07
328	41.8 ps	2 <sup>+</sup>	+0.60(3)	+0.60(3)	<sup>195</sup> <sub>78</sub> Pt	LRIMS	1992Hi07	
					<sup>195</sup> <sub>78</sub> Pt	LRIMS	1992Hi07	
					<sup>195</sup> <sub>78</sub> Pt	LRIMS	1992Hi07	
					<sup>195</sup> <sub>78</sub> Pt	LRIMS	1992Hi07	
					<sup>195</sup> <sub>78</sub> Pt	LRIMS	1992Hi07	
					<sup>195</sup> <sub>78</sub> Pt	LRIMS	1992Hi07	
					<sup>195</sup> <sub>78</sub> Pt	LRIMS	1992Hi07	
					<sup>195</sup> <sub>78</sub> Pt	LRIMS	1992Hi07	
					<sup>195</sup> <sub>78</sub> Pt	LRIMS	1992Hi07	
<sup>194</sup> Pt	622	35 ps	2 <sup>+</sup>	+0.56(11)	+0.48(14)	<sup>194</sup> <sub>78</sub> Pt 328, <sup>196</sup> <sub>78</sub> Pt 356	TF	1992Br03
						<sup>194</sup> <sub>78</sub> Pt 328, <sup>196</sup> <sub>78</sub> Pt 356	IPAC	1975Ka42
						<sup>194</sup> <sub>78</sub> Pt 328, <sup>196</sup> <sub>78</sub> Pt 356	CER	1987Gy01
						<sup>194</sup> <sub>78</sub> Pt 328, <sup>196</sup> <sub>78</sub> Pt 356	CER	1987Gy01
						<sup>194</sup> <sub>78</sub> Pt 328, <sup>196</sup> <sub>78</sub> Pt 356	TF	1992Br03
						<sup>194</sup> <sub>78</sub> Pt 328, <sup>196</sup> <sub>78</sub> Pt 356	IPAC	1975Ka42
						<sup>194</sup> <sub>78</sub> Pt 328, <sup>196</sup> <sub>78</sub> Pt 356	TF	1992Br03
						<sup>194</sup> <sub>78</sub> Pt 328, <sup>196</sup> <sub>78</sub> Pt 356	IPAC	1975Ka42
						<sup>194</sup> <sub>78</sub> Pt 328, <sup>196</sup> <sub>78</sub> Pt 356	TF	1992Br03
	811	3.7 ps	4 <sup>+</sup>	+1.12(12)	+0.5(10)	<sup>194</sup> <sub>78</sub> Pt 328, <sup>196</sup> <sub>78</sub> Pt 356	TF	1992Br03
						<sup>194</sup> <sub>78</sub> Pt 328, <sup>196</sup> <sub>78</sub> Pt 356	IPAC	1975Ka42
						<sup>194</sup> <sub>78</sub> Pt 328, <sup>196</sup> <sub>78</sub> Pt 356	CER	1987Gy01
						<sup>194</sup> <sub>78</sub> Pt 328, <sup>196</sup> <sub>78</sub> Pt 356	CER	1987Gy01
						<sup>194</sup> <sub>78</sub> Pt 328, <sup>196</sup> <sub>78</sub> Pt 356	TF	1992Br03
						<sup>194</sup> <sub>78</sub> Pt 328, <sup>196</sup> <sub>78</sub> Pt 356	IPAC	1975Ka42
						<sup>194</sup> <sub>78</sub> Pt 328, <sup>196</sup> <sub>78</sub> Pt 356	TF	1992Br03
						<sup>194</sup> <sub>78</sub> Pt 328, <sup>196</sup> <sub>78</sub> Pt 356	IPAC	1975Ka42
						<sup>194</sup> <sub>78</sub> Pt 328, <sup>196</sup> <sub>78</sub> Pt 356	TF	1992Br03
0	Stable	1/2 <sup>−</sup>	+0.60952(6)	+0.5(10)	<sup>23</sup> <sub>11</sub> Na	N	1951Pr02	
					<sup>195</sup> <sub>78</sub> Pt	ME	1967Ag01	
					<sup>195</sup> <sub>78</sub> Pt	ME	1974Ru03	
					<sup>195</sup> <sub>78</sub> Pt	ME	1974Ru03	
					<sup>195</sup> <sub>78</sub> Pt	ME	1974Ru03	
					<sup>195</sup> <sub>78</sub> Pt	ME	1974Ru03	
					<sup>195</sup> <sub>78</sub> Pt	ME	1974Ru03	
					<sup>195</sup> <sub>78</sub> Pt	ME	1974Ru03	
					<sup>195</sup> <sub>78</sub> Pt	ME	1974Ru03	
<sup>195</sup> Pt	99	0.17 ns	3/2 <sup>−</sup>	−0.62(6)	+0.63(6)	<sup>195</sup> <sub>78</sub> Pt	ME	1967Ag01
						<sup>195</sup> <sub>78</sub> Pt	ME	1967Ag01
						<sup>195</sup> <sub>78</sub> Pt	ME	1967Ag01
						<sup>195</sup> <sub>78</sub> Pt	ME	1967Ag01
						<sup>195</sup> <sub>78</sub> Pt	ME	1967Ag01
						<sup>195</sup> <sub>78</sub> Pt	ME	1967Ag01
						<sup>195</sup> <sub>78</sub> Pt	ME	1967Ag01
						<sup>195</sup> <sub>78</sub> Pt	ME	1967Ag01
						<sup>195</sup> <sub>78</sub> Pt	ME	1967Ag01
	130	0.62 ns	5/2 <sup>−</sup>	+0.90(6)	+0.63(6)	<sup>195</sup> <sub>78</sub> Pt	ME	1967Ag01
						<sup>195</sup> <sub>78</sub> Pt	ME	1967Ag01
						<sup>195</sup> <sub>78</sub> Pt	ME	1967Ag01
						<sup>195</sup> <sub>78</sub> Pt	ME	1967Ag01
						<sup>195</sup> <sub>78</sub> Pt	ME	1967Ag01
						<sup>195</sup> <sub>78</sub> Pt	ME	1967Ag01
						<sup>195</sup> <sub>78</sub> Pt	ME	1967Ag01
						<sup>195</sup> <sub>78</sub> Pt	ME	1967Ag01
						<sup>195</sup> <sub>78</sub> Pt	ME	1967Ag01
<sup>196</sup> Pt	211	49 ps	3/2 <sup>−</sup>	+0.16(3)	+0.63(6)	<sup>195</sup> <sub>78</sub> Pt	ME	1967Ag01
						<sup>195</sup> <sub>78</sub> Pt	ME	1967Ag01
						<sup>195</sup> <sub>78</sub> Pt	ME	1967Ag01
						<sup>195</sup> <sub>78</sub> Pt	ME	1967Ag01
						<sup>195</sup> <sub>78</sub> Pt	ME	1967Ag01
						<sup>195</sup> <sub>78</sub> Pt	ME	1967Ag01
						<sup>195</sup> <sub>78</sub> Pt	ME	1967Ag01
						<sup>195</sup> <sub>78</sub> Pt	ME	1967Ag01
						<sup>195</sup> <sub>78</sub> Pt	ME	1967Ag01
	239	70 ps	5/2 <sup>−</sup>	+0.64(9)	+0.63(6)	<sup>195</sup> <sub>78</sub> Pt	ME	1967Ag01
						<sup>195</sup> <sub>78</sub> Pt	ME	1967Ag01
						<sup>195</sup> <sub>78</sub> Pt	ME	1967Ag01
						<sup>195</sup> <sub>78</sub> Pt	ME	1967Ag01
						<sup>195</sup> <sub>78</sub> Pt	ME	1967Ag01
						<sup>195</sup> <sub>78</sub> Pt	ME	1967Ag01
						<sup>195</sup> <sub>78</sub> Pt	ME	1967Ag01
						<sup>195</sup> <sub>78</sub> Pt	ME	1967Ag01
						<sup>195</sup> <sub>78</sub> Pt	ME	1967Ag01
259	4.02 d	13/2 <sup>+</sup>	0.606(15)	+0.63(6)	<sup>195</sup> <sub>78</sub> Pt	ME	1967Ag01	
					<sup>195</sup> <sub>78</sub> Pt	ME	1967Ag01	
					<sup>195</sup> <sub>78</sub> Pt	ME	1967Ag01	
					<sup>195</sup> <sub>78</sub> Pt	ME	1967Ag01	
					<sup>195</sup> <sub>78</sub> Pt	ME	1967Ag01	
					<sup>195</sup> <sub>78</sub> Pt	ME	1967Ag01	
					<sup>195</sup> <sub>78</sub> Pt	ME	1967Ag01	
					<sup>195</sup> <sub>78</sub> Pt	ME	1967Ag01	
					<sup>195</sup> <sub>78</sub> Pt	ME	1967Ag01	
<sup>197</sup> Pt	389	9 ps	5/2 <sup>−</sup>	+0.39(10)	+0.63(6)	<sup>195</sup> <sub>78</sub> Pt	ME	1967Ag01
						<sup>195</sup> <sub>78</sub> Pt	ME	1967Ag01
						<sup>195</sup> <sub>78</sub> Pt	ME	1967Ag01
						<sup>195</sup> <sub>78</sub> Pt	ME	1967Ag01
						<sup>195</sup> <sub>78</sub> Pt	ME	1967Ag01
						<sup>195</sup> <sub>78</sub> Pt	ME	1967Ag01
						<sup>195</sup> <sub>78</sub> Pt	ME	1967Ag01
						<sup>195</sup> <sub>78</sub> Pt	ME	1967Ag01
						<sup>195</sup> <sub>78</sub> Pt	ME	1967Ag01
	455	>10 ps	5/2 <sup>−</sup>	+1.6(6)	+0.63(6)	<sup>195</sup> <sub>78</sub> Pt	ME	1967Ag01
						<sup>195</sup> <sub>78</sub> Pt	ME	1967Ag01
						<sup>195</sup> <sub>78</sub> Pt	ME	1967Ag01
						<sup>195</sup> <sub>78</sub> Pt	ME	1967Ag01
						<sup>195</sup> <sub>78</sub> Pt	ME	1967Ag01
						<sup>195</sup> <sub>78</sub> Pt	ME	1967Ag01
						<sup>195</sup> <sub>78</sub> Pt	ME	1967Ag01
						<sup>195</sup> <sub>78</sub> Pt	ME	1967Ag01
						<sup>195</sup> <sub>78</sub> Pt	ME	1967Ag01
508	9.7 ps	7/2 <sup>−</sup>	+0.55(8)	+0.63(6)	<sup>195</sup> <sub>78</sub> Pt	ME	1967Ag01	
					<sup>195</sup> <sub>78</sub> Pt	ME	1967Ag01	
					<sup>195</sup> <sub>78</sub> Pt	ME	1967Ag01	
					<sup>195</sup> <sub>78</sub> Pt	ME	1967Ag01	
					<sup>195</sup> <sub>78</sub> Pt	ME	1967Ag01	
					<sup>195</sup> <sub>78</sub> Pt	ME	1967Ag01	
					<sup>195</sup> <sub>78</sub> Pt	ME	1967Ag01	
					<sup>195</sup> <sub>78</sub> Pt	ME	1967Ag01	
					<sup>195</sup> <sub>78</sub> Pt	ME	1967Ag01	
544	>2.8 ps	5/2 <sup>−</sup>	+1.5(4)	+0.63(6)	<sup>195</sup> <sub>78</sub> Pt	ME	1967Ag01	
					<sup>195</sup> <sub>78</sub> Pt	ME	1967Ag01	
					<sup>195</sup> <sub>78</sub> Pt	ME	1967Ag01	
					<sup>195</sup> <sub>78</sub> Pt	ME	1967Ag01	
					<sup>195</sup> <sub>78</sub> Pt	ME	1967Ag01	
					<sup>195</sup> <sub>78</sub> Pt	ME	1967Ag01	
					<sup>195</sup> <sub>78</sub> Pt	ME	1967Ag01	
					<sup>195</sup> <sub>78</sub> Pt	ME	1967Ag01	
					<sup>195</sup> <sub>78</sub> Pt	ME	1967Ag01	
563	14 ps	9/2 <sup>−</sup>	+1.55(12)	+0.63(6)	<sup>195</sup> <sub>78</sub> Pt	ME	1967Ag01	
					<sup>195</sup> <sub>78</sub> Pt	ME	1967Ag01	
					<sup>195</sup> <sub>78</sub> Pt	ME	1967Ag01	
					<sup>195</sup> <sub>78</sub> Pt	ME	1967Ag01	
					<sup>195</sup> <sub>78</sub> Pt	ME	1967Ag01	
					<sup>195</sup> <sub>78</sub> Pt	ME	1967Ag01	
					<sup>195</sup> <sub>78</sub> Pt	ME	1967Ag01	
					<sup>195</sup> <sub>78</sub> Pt	ME	1967Ag01	
					<sup>195</sup> <sub>78</sub> Pt	ME	1967Ag01	

(continued on next page)

Table 1 (continued)

Nucleus	$E$ (level)	$\tau_{1/2}$	$I^\pi$	$\mu$ (nm) <sup>*</sup>	$Q$ (b)	Ref. Std.	Method	Reference
<sup>196</sup> <sub>78</sub> Pt	613	6 ps	7/2 <sup>−</sup>	+1.4(4)			TF	1994La02
	667	(16 ps)	9/2 <sup>−</sup>	+1.52(16)			TF	1994La02
	679	>2.8 ps	7/2 <sup>−</sup>	+1.2(3)			TF	1994La02
	356	34 ps	2 <sup>+</sup>	+0.59(5)			TF	1991St04
				+0.60(5)		<sup>194</sup> <sub>78</sub> Pt 328	TF	1993Ta07
				+0.43(4)			TF	1982Le02
				+0.69(3)			IPAC	1981Ka23
				+0.63(6)		<sup>194</sup> <sub>78</sub> Pt 328	TF	1979Ha06
					+0.62(8)		CER	1992Li14
					+0.66(12)		CER	1986Gy04
	689	36.8 ps	2 <sup>+</sup>	+0.54(9)			R	1992Br03
				+0.75(15)		<sup>196</sup> <sub>78</sub> Pt 356	TF	1981St24
<sup>197</sup> <sub>78</sub> Pt	877	3.6 ps	4 <sup>+</sup>	+1.38(16)			CER	1992Li14
					−0.39(16)		TF	1992Br03
				+1.5(3)		<sup>194</sup> <sub>78</sub> Pt 328, <sup>196</sup> <sub>78</sub> Pt 356 <sup>196</sup> <sub>78</sub> Pt 356	TF	1981St24
					+1.03(12)		CER	1992Li14
					−0.18(26)		CER	1992Li14
	1526	0.98 ps	6 <sup>+</sup>				AB	1976Fu06
	0	18.3 h	1/2 <sup>−</sup>	0.51(2)			TDPAC	1982So05
	53	16.6 ns	5/2 <sup>−</sup>	+0.85(3)			TF	1995An15
	<sup>198</sup> <sub>78</sub> Pt 407	22.3 ps	2 <sup>+</sup>	+0.63(2)		<sup>194</sup> <sub>78</sub> Pt 328, <sup>196</sup> <sub>78</sub> Pt 356 <sup>194</sup> <sub>78</sub> Pt 328	TF	1993Ta07
				+0.70(6)			TF	1991St04
				+0.59(7)			TF	1981St13
				+0.69(6)		<sup>194</sup> <sub>78</sub> Pt 356 <sup>196</sup> <sub>78</sub> Pt 328	TF	1979Ha06
<sup>182</sup> <sub>79</sub> Au				+0.62(10)			CER	1986Gy04
					+0.42(12) or +0.54(12)			
	775	27 ps	2 <sup>+</sup>	+0.61(11)			R	1992Br03
				+0.72(13)		<sup>196</sup> <sub>78</sub> Pt 356	TF	1981St13
	985	3.3 ps	4 <sup>+</sup>	+1.2(2)			R	1992Br03
				+1.4(3)		<sup>196</sup> <sub>78</sub> Pt 356	TF	1981St13
	0	21 s	Unknown	1.30(10) [ $I = 2$ ] 1.62(15) [ $I = 3$ ] 1.9(2) [ $I = 4$ ]			TR/OLNO	1992Ro21
							TR/OLNO	1992Ro21
							TR/OLNO	1992Ro21
	<sup>183</sup> <sub>79</sub> Au 0	42 s	5/2 <sup>−</sup>	+1.97(2)			LRIMS	1988Kr18
	<sup>184</sup> <sub>79</sub> Au 0	21 s	5	+2.07(2)			LRIS	1997Le22
		49 s	2	+1.44(2)	+4.7(3)		LRIS	1997Le22
<sup>185</sup> <sub>79</sub> Au	0	4.2 m	5/2 <sup>−</sup>	+2.17(2)	+1.90(16)		LRIS	1997Le22
							LRIMS	1989Wa11
								1987Wa06
				+1.98(2)			LRIMS	1992Ki30
				2.22(14)			NO/S	1985Va07
					−1.10(10)		LRIMS	1992Ki30
	<sup>186</sup> <sub>79</sub> Au 0	10.7 m	3 <sup>−</sup>	−1.28(3)			LRIMS	1990Sa21
				1.28(2)			NMR/ON	1988Sc19
				−1.26(3)			LRIMS	1989Wa11
								1987Wa06
				1.07(13)			NO/S	1985Va07
					+3.10(6)		LRIMS	1992Ki30
<sup>187</sup> <sub>79</sub> Au					+3.14(16)	<sup>193</sup> <sub>79</sub> Au	NMR/ON	1993Hi10
	0	8.4 m	1/2 <sup>+</sup>	+0.535(15)			LRIMS	1989Wa11
								1987Wa06
				+0.531(12)			LRIMS	1990Sa21
				0.72(7)			AB	1980Ek04
	2670 + $D$	102 ns	31/2 <sup>−</sup> or 35/2 <sup>−</sup>	$g = 0.25(3)$			TDPAD	1997Pe26
	<sup>188</sup> <sub>79</sub> Au 0	8.8 m	1 <sup>−</sup>	−0.07(3)			LRIMS	1989Wa11
								1987Wa06
				0.07(2)			AB	1980Ek04
	<sup>189</sup> <sub>79</sub> Au 0	28.7 m	1/2 <sup>+</sup>	+0.494(14)			LRIMS	1989Wa11
								1987Wa06
	247	4.6 m	11/2 <sup>−</sup>	+6.19(2)			LRIMS	1989Wa11

Table 1 (continued)

Nucleus	$E$ (level)	$\tau_{1/2}$	$I^\pi$	$\mu$ (nm) <sup>*</sup>	$Q$ (b)	Ref. Std.	Method	Reference
<sup>190</sup> <sub>79</sub> Au	2553	242 ns	31/2 <sup>+</sup>	6.17(15)		<sup>195</sup> <sub>79</sub> Au 319	NO/S, NMR/ON	1987Wa06
	0	42.8 m	1 <sup>−</sup>	6.5(3)			TDPAD	1986Va35
				−0.065(7)			LRIMS	1997Pe26
				−0.07(3)			LRIMS	1990Sa21
				−0.07(2)			AB, R, CLS	1989Wa11
<sup>191</sup> <sub>79</sub> Au	0	3.18 h	3/2 <sup>+</sup>	+0.1369(9)		+0.72(2)	LRIMS	1980Ek04
				+0.137(1)			AB, R	1985St10
							LRIMS	1994Pa37
	266	0.9 s	11/2 <sup>−</sup>	6.6(6)			NO/S	1980Ek04
	2446	890 ps	27/2 <sup>−</sup>	≪20			IPAD	1994Pa37
<sup>192</sup> <sub>79</sub> Au	2489	400 ns	31/2 <sup>+</sup>	6.5(6)		−0.228(8)	TDPAD	1985Va07
	0	5.0 h	1 <sup>−</sup>	−0.0107(15)			LRIMS	1985Ko13
				−0.008(2)			LRIMS	1997Pe26
				0.01(2)			AB, R	1994Pa37
							LRIMS	1990Sa21
<sup>193</sup> <sub>79</sub> Au	0	17.65 h	3/2 <sup>+</sup>	0.1396(6)		−0.228(8)	LRIMS	1980Ek04
				+0.1396(5)			AB, R	1994Pa37
				+0.140(1)			LRIMS	1993Hi10
	290	3.9 s	11/2 <sup>−</sup>	6.18(9)			LRIMS	1994Pa37
				6.17(9)			AB, R	1980Ek04
<sup>194</sup> <sub>79</sub> Au	1947	12 ns	21/2 <sup>+</sup>	+6.48(11)		+0.66(2)	NMR/ON	1983Ha10
	2378	790 ps	27/2 <sup>−</sup>	<9.45			NMR/ON	1983Li21
	2477	3.5 ns	31/2 <sup>−</sup>	5(3)			MAPON	1996Se06
	2701	1.8 ns	35/2 <sup>−</sup>	2(2)			TDPAD, R	1989Ra17
	0	39.5 h	1 <sup>−</sup>	+0.0763(13)			IPAD	1985Ko13
<sup>195</sup> <sub>79</sub> Au				+0.079(3)		+1.98(6)	IPAD	1985Ko13
				0.08(2)			IPAD	1985Ko13
							LRIMS	1994Pa37
							LRIMS	1990Sa21
							AB, R	1980Ek04
<sup>196</sup> <sub>79</sub> Au	0	183 d	3/2 <sup>+</sup>	0.1487(6)		−0.240(9)	LRIMS	1994Pa37
				+0.145(5)			NMR/ON	1993Hi10
				+0.149(1)			LRIMS	1990Sa21
	319	30.6 s	11/2 <sup>−</sup>	6.18(9)			AB, R	1980Ek04
				6.17(9)			NMR/ON	1993Hi10
<sup>197</sup> <sub>79</sub> Au						+0.61(2)	NMR/ON	1981Ha27
							NMR/ON	1983Li21
							MAPON	1996Se06
							NO/S, ME	1983Be68
							LRIMS	1983Pe22
<sup>198</sup> <sub>79</sub> Au	0	6.18 d	2 <sup>−</sup>	+0.580(15)		0.81(7)	LRIMS	1990Sa21
				+0.5914(14)			AB/D	1970Sc02
				0.5906(5)			NMR/ON	1987Oh11
							NMR/ON, N	1987Oh11
							AB/D	1984Ri15
<sup>199</sup> <sub>79</sub> Au	596	9.7 h	12 <sup>−</sup>	5.72(8)		<sup>2</sup> <sub>1</sub> H	NMR/ON	1982Ha04
	0	Stable	3/2 <sup>+</sup>	+0.145746(9)			AB/D	1967Da04
				+0.148158(8)			N	1967Na13
								1968Na01
								1974Po12
<sup>200</sup> <sub>79</sub> Au						+0.547(16) a 0.594(10)	Mu-X, O	1974Po12
							AB	1967Bl16
								1966Ch03
	77	1.91 ns	1/2 <sup>+</sup>	+0.420(3)			ME	1968Co17
	279	20.4 ps	5/2 <sup>+</sup>	+0.53(5)			TF	1986Ba19
<sup>210</sup> <sub>79</sub> Au				+0.74(6)		+1.68(5)	TF	1988St09
				(+)+5.98(9)			NMR/ON	1984Ha12
	409	7.8 s	11/2 <sup>−</sup>	6.4(4)			NO/S	1983Li21
							MAPON	1996Se06
							NO/S, ME	1983Be68
<sup>211</sup> <sub>79</sub> Au						+1.4(2)		1983Pe22
								1988St09
								1988St16
	503	1.8 ps	5/2 <sup>+</sup>	+3.0(5)			TF	
	548	4.6 ps	7/2 <sup>+</sup>	+0.53(7)			TF	

(continued on next page)



Table 1 (continued)

Nucleus	$E$ (level)	$\tau_{1/2}$	$I^\pi$	$\mu$ (nm) <sup>*</sup>	$Q$ (b)	Ref. Std.	Method	Reference
<sup>195</sup> <sub>80</sub> Hg	Band	ABCD +	AB	$g(\text{average})$ $= 0.25(2)$			TF	1998We23
	Band	ABCE +	AE	$g(\text{average})$ $= 0.26(3)$			TF	1998We23
	Band	ABCF +	AF	$g(\text{average})$ $= 0.27(2)$			TF	1998We23
	0	9.9 h	$1/2^-$	+0.5414749(14)		<sup>199</sup> <sub>80</sub> Hg	NMR/OP	1973Re04
	176	41.6 h	$13/2^+$	−1.044647(3)	+1.08(11) st	<sup>199</sup> <sub>80</sub> Hg <sup>201</sup> <sub>80</sub> Hg	NMR/OP β-NMR/OP	1973Re04 1986U102
<sup>196</sup> <sub>80</sub> Hg	1841	5.2 ns	$7^-$	−0.29(13)			TDPAD, IPAD	1984Go06
	2342	5.1 ns	$10^+$	−1.8(9)			IPAD	1980Kr21
	2439	3.5 ns	$12^+$	−2.2(11)			IPAD	1980Kr21
<sup>197</sup> <sub>80</sub> Hg	0	64.1 h	$1/2^-$	+0.5273744(9) d		<sup>199</sup> <sub>80</sub> Hg	NMR/OP	1973Re04
	134	8.1 ns	$5/2^-$	+0.855(15)	−0.081(6)	<sup>199</sup> <sub>80</sub> Hg 158 <sup>199</sup> <sub>80</sub> Hg 158	TDPAC TDPAC, PPDAC	1977Kr11 1980He05
<sup>198</sup> <sub>80</sub> Hg					0.080(10)	<sup>197</sup> <sub>80</sub> Hg 299	TDPAD, R	1981Kr16
	299	23.8 h	$13/2^+$	−1.027684(3) d		<sup>199</sup> <sub>80</sub> Hg	NMR/OP	1980He05
					+1.24(14) st	<sup>201</sup> <sub>80</sub> Hg	β-NMR/OP	1973Re04
	412	23 ps	$2^+$	+0.76(6)		<sup>199</sup> <sub>80</sub> Hg 158	TF	1986U102
				+1.0(2)		<sup>199</sup> <sub>80</sub> Hg 158	IMPAC, R	1995Br34
				0.70(14)			RIGV, R	1986Ko02
					+0.68(12) or +0.84(12) +0.7(2) or +0.8(2) +0.5(2) a		CER	1977Kr11 1984Fe08
	1048	1.8 ps	$4^+$	+1.6(2)		<sup>199</sup> <sub>80</sub> Hg 158	Mu-X	1979Bo16
	1684	7.1 ns	$7^-$	−0.22(11)			TF	1979Ha08
	0	Stable	$1/2^-$	+0.5058855(9)		<sup>2</sup> <sub>1</sub> H	TDPAD, IPAD	1995Br34
<sup>199</sup> <sub>80</sub> Hg	158	2.45 ns	$5/2^-$	+0.88(3) +0.91(9) +0.60(15)		<sup>198</sup> <sub>80</sub> Hg 412	NMR/OP TDPAC IPAC TF	1961Ca21 1977Kr11 1977Kr11 1986Ko02
					+0.8(4)		ME, R	1985La21
					+0.85(12) a +0.95(7) a 0.70(9) st		Mu-X Mu-X TDPAC, Q	1979Wu12 1983Gu02 1979Ha08
	208	69 ps	$3/2^-$	−0.56(9) −0.29(15) −0.47(8)		<sup>201</sup> <sub>80</sub> Hg <sup>199</sup> <sub>80</sub> Hg 158 <sup>198</sup> <sub>80</sub> Hg 412	TF TF IMPAC	1973Ha61 1990Ba40 1986Ko02
					+0.50(12) a +0.62(15) a		Mu-X Mu-X	1986Ko02 1983Gu02
	414	97 ps	$5/2^-$	+0.80(9) −0.7(3)		<sup>199</sup> <sub>80</sub> Hg 158 <sup>198</sup> <sub>80</sub> Hg 412	TF TF	1979Ha08 1990Ba40
	532	42.6 m	$13/2^+$	−1.014703(3)		<sup>199</sup> <sub>80</sub> Hg <sup>201</sup> <sub>80</sub> Hg	β-NMR/OP β-NMR/OP	1986Ko02 1973Re04
					+1.2(5) st	<sup>199</sup> <sub>80</sub> Hg 158 <sup>198</sup> <sub>80</sub> Hg 412	TF IMPAC, R	1986U102 1995Br34
	368	46.6 ps	$2^+$	+0.65(5) +0.6(2) +0.58(12) +0.52(10) 0.80(14)		<sup>198</sup> <sub>80</sub> Hg <sup>198</sup> <sub>80</sub> Hg 412	TF IMPAC, R TF IMPAC	1986Ko02 1986Ko02 1986Ko02
					+1.0(2) or +1.1(2) +0.96(11) or +1.11(11) +2.6(14) a +0.1(6) a		RIGV, R CER	1977Kr11 1980Sp05
<sup>200</sup> <sub>80</sub> Hg							CER	1979Bo16
	947	3.2 ps	$4^+$	1.02(17)		<sup>199</sup> <sub>80</sub> Hg 158	Mu-X	1979Ha08
	0	Stable	$3/2^-$	−0.5602257(14) −0.560226(3)		<sup>199</sup> <sub>80</sub> Hg <sup>1</sup> <sub>1</sub> H	TF NMR/OP NMR/OP	1983Gu02 1995Br34 1973Re04
					0.35(4)	Calculated $Q$ of <sup>206</sup> <sub>80</sub> Hg 2102	B(E2)	1961Ca21
					+0.38(4) st		AB, R	2001Fo08

(continued on next page)

Table 1 (continued)

Nucleus	$E$ (level)	$\tau_{1/2}$	$I^\pi$	$\mu$ (nm) <sup>*</sup>	$Q$ (b)	Ref. Std.	Method	Reference
<sup>202</sup> <sub>80</sub> Hg	32	$\sim 0.1$ ns	$3/2^-$	$+0.78(6)$	0.39(5)	<sup>199</sup> <sub>80</sub> Hg 158	Mu-X	1979Ha08
					or 0.27(4) a			
					0.41(4)		O	1965Mu15
					0.46(4)		AB	1960Mc11
					+0.53(4)		TDPAC, Q	1975Ed01
	440	27.3 ps	$2^+$	$+0.78(6)$ $+0.9(2)$ $+1.0(3)$ $1.0(2)$	0.3(15) or 0.1(3) a	<sup>199</sup> <sub>80</sub> Hg 158 <sup>198</sup> <sub>80</sub> Hg 412 <sup>198</sup> <sub>80</sub> Hg 412	Mu-X	1979Ha08
							TF	1995Br34
							TF	1986Ko02
							IMPAC, R	1986Ko02
							RIGV, R	1977Kr11
<sup>203</sup> <sub>80</sub> Hg	1120	2.0 ps	$4^+$	1.36(27)	+0.87(13) or +1.01(13)	<sup>199</sup> <sub>80</sub> Hg 158	CER	1980Sp05
	0	46.8 d	$5/2^-$	$+0.84895(13)$	+0.17(14) or +0.32(14)		CER	1979Bo16
							TF	1995Br34
							$\beta$ -NMR/OP	1970Ki05
<sup>204</sup> <sub>80</sub> Hg	437	40.2 ps	$2^+$	$+0.9(2)$ $+0.8(2)$	+0.34(4) st	<sup>201</sup> <sub>80</sub> Hg <sup>198</sup> <sub>80</sub> Hg 412 <sup>198</sup> <sub>80</sub> Hg 412	$\beta$ -NMR/OP	1964Re03
							TF	1986U102
							IMPAC, R	1986Ko02
							CER	1981Es03
							CER	1979Bo16
<sup>205</sup> <sub>80</sub> Hg	0	5.2 m	$1/2^-$	+0.60089(10)	+0.4(2)	<sup>199</sup> <sub>80</sub> Hg	Mu-X	1979Ha08
<sup>206</sup> <sub>80</sub> Hg	2102	2.15 $\mu$ s	$5^-$	+5.45(5)	+0.2(2) or +0.4(2)		$\beta$ -NMR/OP	1975Ro10
<sup>187</sup> <sub>81</sub> Tl	0	51 s	$(1/2^+)$	1.55(6)	0.74(15)	<sup>199</sup> <sub>80</sub> Hg 158	TDPAD	1984Ma43
							CFBLS	1993ScZW
	335	15.6 s	$(9/2^-)$	(+).3.79(2)			CFBLS	1993ScZW
<sup>188</sup> <sub>81</sub> Tl	0 + x	71 s	$7^+$	$+0.483(8)$	-2.43(5)	<sup>203,5</sup> <sub>81</sub> Tl	CFBLS	1993ScZW
							CFBLS	1992Me07
					+0.129(4)		CFBLS	1992Me07
<sup>189</sup> <sub>81</sub> Tl	281	1.4 m	$9/2^-$	$+3.878(6)$		<sup>203,5</sup> <sub>81</sub> Tl	CFBLS	1987Bo44
					-2.29(4)		CFBLS	1987Bo44
							CFBLS	1992Me07
<sup>190</sup> <sub>81</sub> Tl	0 + x	2.6 m	$2^-$	$+0.254(2)$	-0.329(9)	<sup>203,5</sup> <sub>81</sub> Tl	CFBLS	1992Me07
							CFBLS	1992Me07
	0 + y	3.7 m	$7^+$	$+0.487(8)$ $+0.495(4)$			CFBLS	1992Me07
					+0.285(14)		CFBLS	1987Bo44
							CFBLS	1992Me07
<sup>191</sup> <sub>81</sub> Tl	0	2.2 m	$1/2^+$	$+1.588(4)$		<sup>203,5</sup> <sub>81</sub> Tl	CFBLS	1992Me07
							CFBLS	1992Me07
	299	5.2 m	$9/2^-$	$+3.880(7)$ $+3.903(5)$			CFBLS	1992Me07
					-2.23(2)		CFBLS	1987Bo44
					-2.28(3)		CFBLS	1992Me07
<sup>192</sup> <sub>81</sub> Tl	0 + x	9.6 m	$2^-$	$+0.200(3)$	-0.328(11)	<sup>203,5</sup> <sub>81</sub> Tl	CFBLS	1987Bo44
							CFBLS	1992Me07
	0 + y	10.8 m	$7^+$	$+0.502(8)$ $+0.518(4)$			CFBLS	1992Me07
							CFBLS	1987Bo44
	251 + x	296 ns	$8^-$	$+1.66(4)$	+0.46(2)			
<sup>193</sup> <sub>81</sub> Tl	0	21.6 m	$1/2^+$	$+1.591(2)$	0.44(7)	<sup>203,5</sup> <sub>81</sub> Tl	TDPAD	1982Da17
							TDPAD	1982Sc27
	365	2.11m	$9/2^-$	$+3.948(4)$			CFBLS	1987Bo44
							CFBLS	1987Bo44
<sup>194</sup> <sub>81</sub> Tl	0	34 m	$2^-$	$+0.140(3)$ $0.14(1)$	-2.20(2)	<sup>203,5</sup> <sub>81</sub> Tl	CFBLS	1987Bo44
							CFBLS	1992Me07
							AB	1976Ek03
	0 + y	32.8 m	$7^+$	$+0.530(8)$ $+0.540(5)$	-0.282(7)		CFBLS	1984Be40
							CFBLS	1992Me07
<sup>195</sup> <sub>81</sub> Tl	0	1.16 h	$1/2^+$	$+1.58(4)$ $+1.59(9)$	+0.607(16)	<sup>205</sup> <sub>81</sub> Tl	CFBLS	1992Me07
					0.62(1)		CFBLS	1986BoZZ
							O	1969Go21
							AB/D, R	1984Be40
<sup>196</sup> <sub>81</sub> Tl	0	1.84 h	$2^-$	$+0.072(3)$ $0.07(1)$		<sup>203,5</sup> <sub>81</sub> Tl	CFBLS	1992Me07
							CFBLS	1976Ek03
							AB	1984Be40



Table 1 (continued)

Nucleus	$E$ (level)	$\tau_{1/2}$	$I^\pi$	$\mu$ (nm) <sup>*</sup>	$Q$ (b)	Ref. Std.	Method	Reference
<sup>197</sup> <sub>81</sub> Tl	394	1.41 h	7 <sup>+</sup>	+0.549(8)	−0.178(14)	<sup>203,5</sup> <sub>81</sub> Tl	CFBLS	1992Me07
						<sup>203,5</sup> <sub>81</sub> Tl	CFBLS	1992Me07
	0	2.84 h	1/2 <sup>+</sup>	+1.58(2)	+0.76(2)	<sup>203,5</sup> <sub>81</sub> Tl	CFBLS	1992Me07
				+1.59(9)		<sup>205</sup> <sub>81</sub> Tl	O	1966Da15
<sup>198</sup> <sub>81</sub> Tl	0	5.3 h	2 <sup>−</sup>	0.00(1)		<sup>203</sup> <sub>81</sub> Tl	AB/D, R	1984Be40
							AB	1976Ek03
<sup>199</sup> <sub>81</sub> Tl	544	1.87 h	7 <sup>+</sup>	+0.641(10)		<sup>203</sup> <sub>81</sub> Tl	AB	1983Bu04
	0	7.4 h	1/2 <sup>+</sup>	+1.60(2)		<sup>205</sup> <sub>81</sub> Tl	O	1966Da15
				+1.58(7)			AB/D, R	1984Be40
<sup>200</sup> <sub>81</sub> Tl	0	26.1 h	2 <sup>−</sup>	0.04(1)		<sup>203</sup> <sub>81</sub> Tl	AB	1976Ek03
<sup>201</sup> <sub>81</sub> Tl	0	73 h	1/2 <sup>+</sup>	+1.605(2)		<sup>203,5</sup> <sub>81</sub> Tl	CFBLS	1987Bo44
				+1.60(7)			AB/D, R	1984Be40
<sup>202</sup> <sub>81</sub> Tl	0	12.2 d	2 <sup>−</sup>	0.06(1)		<sup>203</sup> <sub>81</sub> Tl	AB	1976Ek03
								1984Be40
<sup>203</sup> <sub>81</sub> Tl	950	572 $\mu$ s	7 <sup>+</sup>	+0.90(4)			TDPAD	1974Ha06
	0	Stable	1/2 <sup>+</sup>	+1.62225787(12)		<sup>1</sup> H	N	1950Pr51
				+1.6231(13)		<sup>203</sup> <sub>81</sub> Tl	CFBLS	1987Bo44
	279	281 ps	3/2 <sup>+</sup>	0.0(2)		<sup>194</sup> <sub>78</sub> Pt 328	TF	1979Ha06
<sup>204</sup> <sub>81</sub> Tl				+0.16(5)			IPAC	1965Ka02
	681	0.88 ps	5/2 <sup>+</sup>	+2.6(11)		<sup>194</sup> <sub>78</sub> Pt 328	TF	1979Ha06
	0	3.78 y	2 <sup>−</sup>	0.09(1)			AB	1976Ek03
	1104	63 $\mu$ s	(7) <sup>+</sup>	+1.187(6)			TDPAD	1972Ma59
<sup>205</sup> <sub>81</sub> Tl	0	Stable	1/2 <sup>+</sup>	+1.63821461(12)		<sup>1</sup> H	N	1950Pr51
	204	1.5 ns	3/2 <sup>+</sup>	−0.8(5)			TF	1984HaXX
				+0.02(12)		<sup>194</sup> <sub>78</sub> Pt 328	TF	1979Ha06
				0.41(5)			Mu-X	1972Ch07
					0.74(15) a		Mu-X	1972Ch07
	619	1.0 ps	5/2 <sup>+</sup>	+2.0(3)			TF	1984HaXX
				+2.2(7)		<sup>194</sup> <sub>78</sub> Pt 328	TF	1979Ha06
	2623	Short	(5/2) <sup>−</sup>	0.71(15)			Mu-X	1972Ch07
					−0.5(2) a		Mu-X	1972Ch07
	3291	2.56 $\mu$ s	25/2 <sup>+</sup>	+6.80(10)			TDPAD	1982Ma05
	1405	78 ns	(5) <sup>+</sup>	+4.27(6)			TDPAD	1976Ha44
	<sup>207</sup> <sub>81</sub> Tl	4.77 m	1/2 <sup>+</sup>	+1.876(5)		<sup>205</sup> <sub>81</sub> Tl	CFBLS	1985Ne06
<sup>208</sup> <sub>81</sub> Tl	0	3.05 m	5 <sup>(+)</sup>	+0.292(13)		<sup>205</sup> <sub>81</sub> Tl	LRSRD	1992La23
<sup>185</sup> <sub>82</sub> Pb	0 + x	4.3(2) s	[13/2 <sup>+</sup> ]	−1.19(3)		<sup>197,9</sup> <sub>82</sub> Pb	LRIS	2002An15
	0 + y	6.3(4) s	[3/2 <sup>−</sup> ]	−1.10(4)		<sup>191−9</sup> <sub>82</sub> Pb	LRIS	2002An15
<sup>191</sup> <sub>82</sub> Pb	138	2.18 m	13/2 <sup>+</sup>	−1.172(7)		<sup>207</sup> <sub>82</sub> Pb	CFBLS	1991Du07
					+0.085(5)	<sup>207</sup> <sub>82</sub> Pb	CFBLS	1991Du07
<sup>192</sup> <sub>82</sub> Pb	2581 + d	1.07 $\mu$ s	12 <sup>+</sup>	2.08(2)			TDPAD	1983St15
<sup>193</sup> <sub>82</sub> Pb	100	5.8 m	13/2 <sup>+</sup>	−1.150(7)		<sup>207</sup> <sub>82</sub> Pb	CFBLS	1991Du07
					+0.195(10)	<sup>207</sup> <sub>82</sub> Pb	CFBLS	1991Du07
	1586 + x	22 ns	(21/2 <sup>−</sup> )	−0.62(12)			TDPAD	2004Io01
	2584 + x	9 ns	(29/2 <sup>−</sup> )	+9.9(4)		<sup>206</sup> <sub>82</sub> Pb 4027	TDPAD	2004Ba31
					0.22(2)		TDPAD	1997Ch33
	2613 + x	135 ns	(33/2 <sup>+</sup> )	−2.82(15)		<sup>206</sup> <sub>82</sub> Pb 4027	TDPAD	2004Ba31
					2.8(3)		TDPAD	2004Io01
<sup>194</sup> <sub>82</sub> Pb	2407	18 ns	9 <sup>−</sup>	−0.38(14)		<sup>206</sup> <sub>82</sub> Pb 4027	TDPAD	2004Ba31
				−0.6(4)		<sup>194</sup> <sub>82</sub> Pb 2628	TDPAD	2004Vy01
	2628	350 ns	12 <sup>+</sup>	−2.076(12)			TDPAD	1985St16
				−2.00(2)			TDPAD	1989Ra17
				−1.90(7)			TDPAD	1977Ro15
					0.49(3)	<sup>206</sup> <sub>82</sub> Pb 4027	TDPAD	1985St16
	2933	122 ns	11 <sup>−</sup>	+11.3(2)		<sup>194</sup> <sub>82</sub> Pb 2628	TDPAD	2004Vy01
<sup>195</sup> <sub>82</sub> Pb					4.5(9)	<sup>196</sup> <sub>82</sub> Pb 2694	LEMS	2002Vy01
	203	15.0 m	13/2 <sup>+</sup>	−1.128(7)		<sup>207</sup> <sub>82</sub> Pb	CFBLS	1991Du07
				−1.1318(13)		<sup>207</sup> <sub>82</sub> Pb	CFBLS	1987Di06
					+0.306(15)	<sup>207</sup> <sub>82</sub> Pb	CFBLS	1991Du07
					+0.29(10)		CFBLS	1987Di06
	2699 + x	95 ns	33/2 <sup>+</sup>	−2.57(10)			TDPAD	1985St16
				−3.1(3)			TDPAD	1983RaZW

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Table 1 (continued)

Nucleus	$E$ (level)	$\tau_{1/2}$	$I^\pi$	$\mu$ (nm) <sup>*</sup>	$Q$ (b)	Ref. Std.	Method	Reference					
<sup>205</sup> <sub>82</sub> Pb	0	$1.5 \times 10^7$ y	$5/2^-$	$+0.7117(4)$ $+0.709(5)$	0.44(2)	<sup>206</sup> <sub>82</sub> Pb 4027	TDPAD	1989Ra17					
					0.62(14) st	<sup>140</sup> <sub>58</sub> Ce 2048	TDPAC	1974He16					
						<sup>207</sup> <sub>82</sub> Pb	ABLFS	1986An06					
						<sup>207</sup> <sub>82</sub> Pb	O	1987Ba85					
						<sup>207</sup> <sub>82</sub> Pb	ABLFS	1986An06					
	1014	5.55 ms	$13/2^+$	$-0.98(4)$	$+0.23(4)$ st		ABLFS	1986An06					
					0.2(4)		O	1987Ba85					
							TDPAD	1971Ma59					
					0.30(5)		QIR	1975Ri03					
								1974DaYM					
<sup>206</sup> <sub>82</sub> Pb	3196	217 ns	$25/2^-$	$-0.845(14)$			TDPAD	1976Li09					
					0.63(3)	<sup>206</sup> <sub>82</sub> Pb 4027	TDPAD	1989Ra17					
							TDPAD	1983St15					
							RIV/D, R	1986Bi13					
					$+0.05(9)$		CER	1978Jo04					
	5161 803	63 ns 8.4 ps	$33/2^+$ $2^+$	$-2.44(8)$ $<0.03$			SOPAD	1972Ma24					
							QIR	1975Ri03					
								1974DaYM					
							IPAC	1970Za03					
							TDPAD	1983St15					
<sup>207</sup> <sub>82</sub> Pb	0	Stable	$1/2^-$	$+0.592583(9)$	0.51(2)	B(E2)	TDPAD	1979Ma37					
						<sup>2</sup> <sub>1</sub> H	N	1971Lu06					
								1950Pr51					
						<sup>199</sup> <sub>80</sub> Hg	OP/RD	1969Gi04					
							IPAC	1973Ao01					
	570 2615	129 ps 15 ps	$5/2^-$ $3^-$	$+0.80(3)$ $+1.9(2)$			IPAC	1973Ao01					
								1969Bo12					
					$-0.34(15)$		CER	1984Ve07					
								1983Sp02					
						<sup>208</sup> <sub>82</sub> Pb 2615	IPAC	1969Bo01					
<sup>209</sup> <sub>82</sub> Pb	3198 4086 0	297 ps 0.74 fs 3.25 h	$5^-$ $2^+$ $9/2^+$	$+0.11(4)$ $2^+$ $-1.4735(16)$	$-0.7(3)$		CER	1984Ve07					
						<sup>207</sup> <sub>82</sub> Pb	ABLFS	1986An06					
					$-0.3(2)$ st		ABLFS	1986An06					
							TDPAD	1983De34					
							TDPAD	1983De34					
	<sup>210</sup> <sub>82</sub> Pb	1195 1272	49 ns 201 ns	$6^+$ $8^+$	$-1.87(9)$ $-2.50(6)$			TDPAD	1983De34				
								TDPAD	1983De34				
						<sup>211</sup> <sub>82</sub> Pb	0	$9/2^+$	$-1.4037(8)$		<sup>207</sup> <sub>82</sub> Pb	ABLFS	1986An06
										$+0.09(6)$ st		ABLFS	1986An06
												NO/S	1988Wo12
<sup>199</sup> <sub>83</sub> Bi	0	11.8 h	$9/2^-$	$4.6(4)$			NO/S	1988Wo12					
							NO/S	1988Wo12					
							NO/S	1988Wo12					
						<sup>209</sup> <sub>83</sub> Bi	LRFS	1996Ca02					
						<sup>209</sup> <sub>83</sub> Bi	R	2001Bi99					
	<sup>201</sup> <sub>83</sub> Bi	0	108 m	$9/2^-$	$4.8(3)$		<sup>209</sup> <sub>83</sub> Bi	LRFS	1996Ca02				
							<sup>209</sup> <sub>83</sub> Bi	LRFS	1996Ca02				
							<sup>209</sup> <sub>83</sub> Bi	LRFS	1996Ca02				
							<sup>209</sup> <sub>83</sub> Bi	R	2001Bi99				
							<sup>209</sup> <sub>83</sub> Bi	LRFS	1996Ca02				
<sup>202</sup> <sub>83</sub> Bi	0	1.72 h	$5^+$ $(5^+)$ $(5^+)$ $(5^+)$ $(6^+)$ $(6^+)$ $(6^+)$	$4.9(3)$ $+4.259(14)$	$-1.21(9)$	<sup>209</sup> <sub>83</sub> Bi	LRFS	1996Ca02					
					$-0.87(9)$	<sup>209</sup> <sub>83</sub> Bi	LRFS	1996Ca02					
							TDPAD	1989Ra17					
							TDPAD	1982Hu07					
								1985No09					
	615	3.04 $\mu$ s	$10^-$	$+2.54(1)$ $2.56(3)$  $2.43(14)$	0.106(13)	<sup>209</sup> <sub>83</sub> Bi	TDPAD	1980K106					
							TDPAD	1987Ma65					
								1987VaZH					
					0.07(3)	<sup>204</sup> <sub>82</sub> Pb	IPAD	1981Th03					
					$+2.07(3)$ $2.06(5)$		TDPAD	1989Ra17					
<sup>203</sup> <sub>83</sub> Bi	0	11.8 h	$9/2^-$	$+4.017(13)$ $+4.62(3)$			TDPAD	1982Hu07					
					0.35(3)	<sup>209</sup> <sub>83</sub> Bi	TDPAD	1987Ma65					
								1987VaZH					
					$>1.0$		IPAD	1981Th03					
						<sup>209</sup> <sub>83</sub> Bi	LRFS	1996Ca02					
	0	11.8 h	$9/2^-$			<sup>209</sup> <sub>83</sub> Bi	AB	1959Li50					
						<sup>209</sup> <sub>83</sub> Bi		1970Hu05					
					$-0.93(7)$	<sup>209</sup> <sub>83</sub> Bi	R	2001Bi99					
					$-0.67(7)$	<sup>209</sup> <sub>83</sub> Bi	LRFS	1996Ca02					
					$-0.68(6)$	<sup>209</sup> <sub>83</sub> Bi	AB	1959Li50					
							1970Hu05						

(continued on next page)

Table 1 (continued)

Nucleus	$E$ (level)	$\tau_{1/2}$	$I^\pi$	$\mu$ (nm) <sup>*</sup>	$Q$ (b)	Ref. Std.	Method	Reference
<sup>204</sup> <sub>83</sub> Bi	1991	90 ns	(21/2 <sup>+</sup> )	2.79(4)			TDPAD	1982Hu07
	2042	194 ns	(25/2 <sup>+</sup> )	3.33(5)			TDPAD	1982Hu07
	0	11.22 h	6 <sup>+</sup>	+4.322(15)		<sup>209</sup> <sub>83</sub> Bi	LRFS	1996Ca02
				4.5(2)			NO/S	1988Wo12
				+4.28(2)		<sup>209</sup> <sub>83</sub> Bi	AB	1959Li50
								1970Hu05
					−0.7(2)	<sup>209</sup> <sub>83</sub> Bi	R	2001Bi99
					−0.49(15)	<sup>209</sup> <sub>83</sub> Bi	LRFS	1996Ca02
					−0.43(4)	<sup>209</sup> <sub>83</sub> Bi	AB	1959Li50
								1970Hu05
<sup>205</sup> <sub>83</sub> Bi	806	13.0 ms	10 <sup>−</sup>	2.59(4)			NMR/AC	1974Ho40
				2.4(2)			TDPAD	1980Kl06
								1985No09
					0.0630(12)	<sup>202</sup> <sub>83</sub> Bi 615	LEMS	1991Sc14
	0	15.3 d	9/2 <sup>−</sup>	+4.065(7)		<sup>209</sup> <sub>83</sub> Bi	LRFS	1997Ki15
				+4.16(10)		<sup>209</sup> <sub>83</sub> Bi	O, AB	1975Ma08
								1959Li50
					−0.81(3)	<sup>209</sup> <sub>83</sub> Bi	R	2001Bi99
					−0.59(4)	<sup>209</sup> <sub>83</sub> Bi	LRFS	1997Ki15
								1982Hu07
<sup>206</sup> <sub>83</sub> Bi	2064	100 ns	21/2 <sup>+</sup>	2.70(4)			TDPAD	1982Hu07
	2138	223 ns	25/2 <sup>+</sup>	3.21(5)			TDPAD	1982Hu07
	0	6.243 d	6 <sup>+</sup>	+4.361(8)		<sup>209</sup> <sub>83</sub> Bi	LRFS	1997Ki15
				+4.60(4)		<sup>209</sup> <sub>83</sub> Bi	AB	1959Li50
					−0.54(4)	<sup>209</sup> <sub>83</sub> Bi	R	2001Bi99
					−0.39(4)	<sup>209</sup> <sub>83</sub> Bi	LRFS	1997Ki15
					−0.20(4)	<sup>209</sup> <sub>83</sub> Bi	AB	1959Li50
								1970Hu05
	1045	0.89 ms	(10 <sup>−</sup> )	2.644(14)			NMR/AC	1973Sc21
								1985No09
<sup>207</sup> <sub>83</sub> Bi					0.049(9)	<sup>202</sup> <sub>83</sub> Bi 615	LEMS	1991Sc14
	0	32.2 y	9/2 <sup>−</sup>	4.0915(9)		<sup>209</sup> <sub>83</sub> Bi	LRFS	2000Pe30
				4.081(9)		<sup>209</sup> <sub>83</sub> Bi	O	1985Ba21
					−0.76(2)	<sup>209</sup> <sub>83</sub> Bi	R	2001Bi99
					−0.55(4)	<sup>209</sup> <sub>83</sub> Bi	LRFS	2000Pe30
					−0.60(11)	<sup>209</sup> <sub>83</sub> Bi	O	1985Ba21
	2101	182 $\mu$ s	21/2 <sup>+</sup>	+3.43(2)			TDPAD	1989Ra99
				+3.41(6)			SOPAD	1972Ma24
					0.044(8)	<sup>202</sup> <sub>83</sub> Bi 615	LEMS	1991Sc14
	0	3.7 $\times 10^5$ y	5 <sup>+</sup>	+4.578(13)		<sup>209</sup> <sub>83</sub> Bi	LRFS	2000Pe30
<sup>208</sup> <sub>83</sub> Bi					−0.70(8)	<sup>209</sup> <sub>83</sub> Bi	R	2001Bi99
					−0.51(7)	<sup>209</sup> <sub>83</sub> Bi	LRFS	2000Pe30
	1571	2.53 ms	10 <sup>−</sup>	2.672(14)			NMR/AD	1974Hu11
								1985No09
				2.633(14)			TDPAD	1975WhZX
	0	Stable	9/2 <sup>−</sup>	+4.1103(5) d			R	1996Ba94
				+4.1106(2)		<sup>2</sup> <sub>1</sub> H	N	1953Ti01
								1951Pr02
					−0.516(15)		R	2001Bi99
					−0.37(3) a		Mu-X	1972Le07
<sup>209</sup> <sub>83</sub> Bi					−0.55(1)		AB	1983De07
					−0.77(1) st		AB	1983De07
					−0.40(5)		R	1974Ho40
					−0.39(3)		O	1967Di04
								1970Ge10
					−0.50(8) a		Pi-X	1978Be24
					−0.5(2) a		Pi-X	1981Ba07
	2563	14 fs	(9/2) <sup>+</sup>	3.5(7)			Mu-X	1972Le07
					+0.11(5) a		Mu-X	1972Le07
	2741	12 ps	15/2 <sup>+</sup>	6.2(12)			Mu-X	1972Le07
<sup>210</sup> <sub>83</sub> Bi					0.0(4) a		Mu-X	1972Le07
	2986	18 ns	19/2 <sup>+</sup>	3.50(8)			TDPAD	1978Be17
	0	5.01 d	1 <sup>−</sup>	−0.04451(6)		<sup>209</sup> <sub>83</sub> Bi	AB, NO/S	1962Al02
								1973Na99
					+0.190(6)	<sup>209</sup> <sub>83</sub> Bi	R	2001Bi99

Table 1 (continued)

Nucleus	$E$ (level)	$\tau_{1/2}$	$I^\pi$	$\mu$ (nm) <sup>*</sup>	$Q$ (b)	Ref. Std.	Method	Reference
					+0.136(1)	<sup>209</sup> <sub>83</sub> Bi	AB	1962Al02
	271	$3.0 \times 10^6$ y	$9^-$	+2.73(4)		<sup>209</sup> <sub>83</sub> Bi	LRFS	1970Hu05
					−0.66(7)	<sup>209</sup> <sub>83</sub> Bi	R	1997Ki15
					−0.47(6)	<sup>209</sup> <sub>83</sub> Bi	LRFS	2001Bi99
	433	56.8 ns	$7^-$	+2.11(5)		<sup>209</sup> <sub>83</sub> Bi	TDPAD	1997Ki15
	439	37 ns	$5^-$	+1.53(5)		<sup>209</sup> <sub>83</sub> Bi	TDPAD	1972Ba65
<sup>83</sup> Bi <sup>211</sup>	405	315 ps	$7/2^-$	+4.5(7)		<sup>209</sup> <sub>83</sub> Bi	IPAC	1972Ba65
<sup>83</sup> Bi <sup>212</sup>	0	60.6 m	$1^{(-)}$	+0.32(4)		<sup>209</sup> <sub>83</sub> Bi	LRFS	1965Ag03
				0.41(5)		<sup>209</sup> <sub>83</sub> Bi	NO/S	1997Ki15
					+0.1(4)	<sup>209</sup> <sub>83</sub> Bi	R	1992Li25
					+0.1(3)	<sup>209</sup> <sub>83</sub> Bi	LRFS	2001Bi99
<sup>83</sup> Bi <sup>213</sup>	0	45.6 m	$9/2^-$	+3.716(7)		<sup>209</sup> <sub>83</sub> Bi	LRFS	1997Ki15
				3.89(9)		<sup>209</sup> <sub>83</sub> Bi	NO/S	1997K115
					−0.83(5)	<sup>209</sup> <sub>83</sub> Bi	R	1992Li25
					−0.60(5)	<sup>209</sup> <sub>83</sub> Bi	LRFS	2001Bi99
<sup>198</sup> <sub>84</sub> Po	1854	29 ns	$8^+$	+7.3(2)			TDPAD	1997Ki15
	2566	200 ns	$11^-$	+12.1(6)			TDPAD	1986Ma31
	2692 + $x$	750 ns	$12^+$	−1.86(4)			TDPAD	1986Ma31
<sup>199</sup> <sub>84</sub> Po	310	4.2 m	$13/2^+$	0.99(7)			NO/S	1986Ma31
<sup>200</sup> <sub>84</sub> Po	1774	61 ns	$8^+$	+7.44(16)			TDPAD	1991Wo04
					1.38(7)	<sup>210</sup> <sub>84</sub> Po 1557	TDPAD, R	1986Ma31
	2596	100 ns	$11^-$	+11.9(2)			TDPAD	1987Ma65
	2830	270 ns	$12^+$	−1.79(2)			TDPAD	1986Ma31
<sup>201</sup> <sub>84</sub> Po	0	15.3 m	$3/2^-$	0.94(8)			NO/S	1986Ma31
	425	8.9 m	$13/2^+$	1.00(7)			NO/S	1991Wo04
<sup>202</sup> <sub>84</sub> Po	1712	110 ns	$8^+$	7.45(12)			TDPAD	1991Wo04
					1.21(16)		LEMS	1976Ha56
	2625	85 ns	$11^-$	11.9(4)			TDPAD	1997Ne06
<sup>203</sup> <sub>84</sub> Po	0	36.7 m	$5/2^-$	0.74(6)			NO/S	1976Ha56
				(+) $0.74(3)$			NO/S	1991Wo04
<sup>204</sup> <sub>84</sub> Po	1639	158 ns	$8^+$	+7.38(10)			SOPAD	1987VaZH
	3565	12 ns	$15^-$	5.6(6)			TDPAD	1973Br14
					1.14(5)	<sup>210</sup> <sub>84</sub> Po 1557	TDPAD	1987Ma65
						<sup>208</sup> <sub>84</sub> Po 1528	TDPAD	1982Ha16
<sup>205</sup> <sub>84</sub> Po	0	1.66 h	$5/2^-$	+0.76(6)		<sup>207</sup> <sub>84</sub> Po	NMR/ON	1983He09
	880	640 $\mu$ s	$13/2^+$	−0.95(5)			TDPAD	1974BrXD
<sup>206</sup> <sub>84</sub> Po	1586	212 ns	$8^+$	+7.34(7)			SOPAD, TDPAD	1973Na18
					1.02(4)	<sup>210</sup> <sub>84</sub> Po 1557	TDPAD	1973Br14
<sup>207</sup> <sub>84</sub> Po	0	5.79 h	$5/2^-$	+0.79(6)			NMR/ON	1987Ma65
	1115	47 $\mu$ s	$13/2^+$	−0.910(14)			TDPAD	1983He09
	2380	43 ns	$25/2^+$	5.41(4)			TDPAD	1973Ri06
<sup>208</sup> <sub>84</sub> Po	1524	4.3 ns	$6^+$	+5.3(6)			TDPAD, R	1985Ro07
	1528	380 ns	$8^+$	+7.37(5)			SOPAD, TDPAD	1982Ha16
					0.90(4)	<sup>210</sup> <sub>84</sub> Po 1557	TDPAD	1983He09
<sup>209</sup> <sub>84</sub> Po	2703	8.0 ns	$11^-$	12.11(14)			TDPAD	1976Ha56
	0	102 y	$1/2^-$	0.68(8)			O	1987Ma65
	1418	24.4 ns	$(13/2)^-$	6.13(9)			TDPAD	1966Ch99
	1473	98.1 ns	$(17/2^-)$	7.75(5)			TDPAD	1976Ha56
					(−) $0.39(8)$	<sup>210</sup> <sub>84</sub> Po 1557	TDPAD	1976Ha56
<sup>210</sup> <sub>84</sub> Po	4266	118 ns	$31/2^-$	+9.68(8)		<sup>208</sup> <sub>84</sub> Po 1528	TDPAD	1974Na02
	1473	43 ns	$6^+$	5.48(5)			TDPAD	1983Da01
	1557	96 ns	$8^+$	+7.35(5)			TDPAD	1976Re12
					(−) $0.57(2)$	Est. from B(E2)	Not measured	1976Ha56
	2849	20.1 ns	$11^-$	+12.20(9)			TDPAD	1987Ma65
					−0.86(11)	<sup>210</sup> <sub>84</sub> Po 1557	TDPAD	1983Da01
					−0.8(2)	<sup>210</sup> <sub>84</sub> Po 1557	TDPAD	1976Re12
	4372	51 ns	$13^-$	6.8(2)			TDPAD	1991Be03
								1983Da01
								1985Be22

(continued on next page)

Table 1 (continued)

Nucleus	$E$ (level)	$\tau_{1/2}$	$I^\pi$	$\mu$ (nm) <sup>*</sup>	$Q$ (b)	Ref. Std.	Method	Reference	
<sup>211</sup> <sub>84</sub> Po <sup>207</sup> <sub>85</sub> At	5058	265 ns	16 <sup>+</sup>	9.84(8)	−0.90(7)	<sup>210</sup> <sub>84</sub> Po 1557	TDPAD	1991Be03	
					(−)0.62(11)	<sup>210</sup> <sub>84</sub> Po 1557	TDPAD	1983Da01	
							TDPAD	1985Be22	
					−1.30(2)	<sup>210</sup> <sub>84</sub> Po 1557	TDPAD	1991Be03	
					1.34(8)	<sup>210</sup> <sub>84</sub> Po 1557	TDPAD	1986MaZP	
	1065	16 ns	15/2 <sup>−</sup>	−0.38(15)			IPAD	1973Fa99	
	2117	108 ns	25/2 <sup>+</sup>	+3.75(13)		<sup>210</sup> <sub>84</sub> Po 1557	TDPAD	1978Sj01	
	<sup>208</sup> <sub>85</sub> At	1090	48 ns	10 <sup>−</sup>	+2.69(3)			TDPAD	1981Sj01
		2276	1.5 μs	16 <sup>−</sup>		1.7(3)	g calculated	LEMS	1985No09
									1991Sc15
<sup>209</sup> <sub>85</sub> At	1428	26 ns	21/2 <sup>−</sup>	+10.0(2)			TDPAD	1976Sj01	
					0.78(8)	<sup>211</sup> <sub>85</sub> At 2641	TDPAD	1983Ma08	
	2429	890 ns	29/2 <sup>+</sup>	15.38(14)			TDPAD	1987Ma65	
<sup>210</sup> <sub>85</sub> At	1363	28.4 ns	11 <sup>+</sup>	+9.8(3)	1.50(15)	<sup>211</sup> <sub>85</sub> At 2641	LEMS	1991Sc15	
					1.50(15)	<sup>211</sup> <sub>85</sub> At 2641	TDPAD	1983Ma08	
							TDPAD	1975ReZU	
					0.65(8)	<sup>211</sup> <sub>85</sub> At 2641	TDPAD	1983Ma08	
	2550	480 ns	15 <sup>−</sup>	+15.68(2) 15.48(15) 15.57(15)			TDPAD	1989Ra17	
							TDPAD	1987Ma65	
							TDPAD, R	1978Ra03	
					1.22(12)	<sup>211</sup> <sub>85</sub> At 2641	LEMS	1991Sc15	
					1.22(12)	<sup>211</sup> <sub>85</sub> At 2641	TDPAD	1983Ma08	
	4028	5.9 μs	19 <sup>+</sup>	13.26(13) 14.0(5)			TDPAD	1987Ma65	
<sup>211</sup> <sub>85</sub> At					2.2(3)	<sup>210</sup> <sub>85</sub> At 2550	TDPAD	1978Ra03	
						<sup>211</sup> <sub>85</sub> At 2641	LEMS	1991Sc15	
							TDPAD	1976Ha62	
					0.53(5)	B(E2)	R	1975In01	
								1983Ma08	
	2641	50.8 ns	29/2 <sup>+</sup>	+15.31(13)			TDPAD	1976Ha62	
								1975In01	
					1.00(5)		R	1995Ba66	
					1.0(2)	<sup>211</sup> <sub>85</sub> At 1417	TDPAD	1983Ma08	
	4816	4.2 μs	39/2 <sup>−</sup>	13.46(14)			TDPAD	1985Be22	
<sup>212</sup> <sub>85</sub> At					1.9(3)	<sup>211</sup> <sub>85</sub> At 2641	LEMS	1991Sc15	
	888	19.4 ns	11 <sup>+</sup>	5.94(11) 5.95(12)			TDPAD	1994By01	
							TDPAD	1979Sj01	
	1616	37 ns	15 <sup>−</sup>	9.46(8) 9.33(15)			TDPAD	1994By01	
							TDPAD	1979Sj01	
	<sup>217</sup> <sub>85</sub> At <sup>203</sup> <sub>86</sub> Rn	0	32 ms	9/2 <sup>−</sup>	3.8(2)			NO/S	1992Li26
		361	28 s	(13/2 <sup>+</sup> )	−0.960(11)		<sup>209</sup> <sub>86</sub> Rn	CFBLS	1987Bo29
						+1.28(13)		CFBLS	1985Ne99
	<sup>205</sup> <sub>86</sub> Rn	0	2.83 m	5/2 <sup>−</sup>	+0.802(9)		<sup>209</sup> <sub>86</sub> Rn	CFBLS	1987Bo29
						+0.062(6)		CFBLS	1985Ne99
<sup>206</sup> <sub>86</sub> Rn	1922	13.5 ns	8 <sup>+</sup>	6.6(4)			TDPAD	1981Ma28	
	2476	65 ns	(10 <sup>−</sup> )	11.20(10)			TDPAD	1981Ma28	
	<sup>207</sup> <sub>86</sub> Rn	0	9.3 m	5/2 <sup>−</sup>	+0.816(9)		<sup>209</sup> <sub>86</sub> Rn	CFBLS	1987Bo29
					+0.22(2)		CFBLS	1985Ne99	
<sup>208</sup> <sub>86</sub> Rn	899	180 μs	13/2 <sup>+</sup>	−0.903(3)			TDPAD	1981Ma28	
	1826	490 ns	8 <sup>+</sup>	6.98(8)			TDPAD	1981Ma28	
					0.39(5)	<sup>212</sup> <sub>86</sub> Rn 1694	TDPAD	1986Be40	
<sup>209</sup> <sub>86</sub> Rn							TDPAD	1981Ma28	
	2615	22 ns	10 <sup>−</sup>	10.77(10)		<sup>129</sup> <sub>52</sub> Xe 236	N, OP/RD	1988Ki03	
	0	29 m	5/2 <sup>−</sup>	(+)0.8388(4)	+0.31(3)		CFBLS	1985Ne99	
<sup>210</sup> <sub>86</sub> Rn	1665 + $x$	644 ns	(8 <sup>+</sup> )	7.18(6) 7.06(8)			TDPAD	1986Po01	
							TDPAD	1981Ma28	
							TDPAD	1986Be40	
					0.31(4)	<sup>212</sup> <sub>86</sub> Rn 1694	TDPAD	1986Be40	
							TDPAD	1981Ma28	
	2563 + $x$	64 ns	(11) <sup>−</sup>	12.16(11)			TDPAD	1986Po01	
	3248 + $x$	72 ns	(14) <sup>+</sup>	14.92(10) 14.6(3)			TDPAD	1981Ma28	
							TDPAD	1986Po01	
	3812 + $x$	1.05 μs	(17) <sup>−</sup>	17.88(9) 17.7(2)			TDPAD	1986Po01	
							TDPAD	1981Ma28	
					0.86(10)	<sup>212</sup> <sub>86</sub> Rn 1694	TDPAD	1986Be40	
	4993 + $\delta$	12.3 ns	(20) <sup>+</sup>	22.3(1)			TDPAD	1986Po01	
	6468 + $\delta$	1.04 μs	(22) <sup>+</sup>	15.42(15)			TDPAD	1986Po01	
							TDPAD	1986Po01	

Table 1 (continued)

Nucleus	$E$ (level)	$\tau_{1/2}$	$I^\pi$	$\mu$ (nm) <sup>*</sup>	$Q$ (b)	Ref. Std.	Method	Reference
<sup>211</sup> <sub>86</sub> Rn	7310 + $\delta$	34 ns	(25) <sup>−</sup>	18.3(2)			TDPAD	1986Po01
	0	14.6 h	1/2 <sup>−</sup>	+0.601(7)		<sup>209</sup> <sub>86</sub> Rn	CFBLS	1988Ki03
	1578 + $x$	596 ns	17/2 <sup>−</sup>	+7.75(8)			TDPAD	1985Po06
					0.18(2)	<sup>212</sup> <sub>86</sub> Rn 1694	TDPAD	1985Da14
	3926 + $x$	40 ns	35/2 <sup>+</sup>	+17.8(2)			TDPAD	1985Po06
	5246 + $y$	14 ns	43/2 <sup>−</sup>	+15.9(4)			TDPAD	1985Po06
	6100 + $y$	29 ns	49/2 <sup>+</sup>	+18.8(2)			TDPAD	1985Po06
	8855 + $y$	201 ns	63/2 <sup>−</sup>	+19.6(2)			TDPAD	1985Po06
<sup>212</sup> <sub>86</sub> Rn	1502	8.8 ns	4 <sup>+</sup>	4.0(2)		<sup>212</sup> <sub>86</sub> Rn 1694	TDPAD	1985Da14
	1640	118 ns	6 <sup>+</sup>	5.45(5)			TDPAD	1988St17
	1694	0.91 $\mu$ s	8 <sup>+</sup>	+7.15(2)			TDPAD, SOPAD	1979Ho06
				7.16(6)				1978Ha50
					(−)0.17(2)	B(E2)	TDPAD	1988St17
							TDPAD, R	1985Da13
	3358	7.4 ns	14 <sup>+</sup>	15.0(4)			TDPAD	1988St17
	4067	29 ns	17 <sup>−</sup>	17.9(2)			TDPAD	1988St17
				17.9(3)			TDPAD	1979Ho06
								1977Ho17
	6167 + $x$	104 ns	22 <sup>+</sup>	15.8(2)			TDPAD	1988St17
				15.8(2)			TDPAD	1979Ho06
								1977Ho17
	7135 + $x$	18 ns	25 <sup>−</sup>	17.8(5)			TDPAD	1979Ho06
								1977Ho17
<sup>213</sup> <sub>86</sub> Rn	7871 + $x$	14 ns	27 <sup>−</sup>	17.0(8)			TDPAD	1979Ho06
								1977Ho17
	8571 + $x$	154 ns	30 <sup>+</sup>	19.71(9)			TDPAD	1979Ho06
								1977Ho17
	1664	29 ns	21/2 <sup>+</sup>	4.73(11)			TDPAD	1988St10
	1664 + $x$	1 $\mu$ s	25/2 <sup>+</sup>	7.3(3)			TDPAD	1976McZD
				7.6(3)			TDPAD	1988St10
	2187 + $x$	1.36 $\mu$ s	31/2 <sup>−</sup>	9.90(8)			TDPAD	1988St10
	3029 + $x$	26 ns	37/2 <sup>+</sup>	13.67(13)			TDPAD	1988St10
	3494 + $x$	28 ns	43/2 <sup>−</sup>	15.59(15)			TDPAD	1988St10
<sup>219</sup> <sub>86</sub> Rn	4506 + $x$	12 ns	49/2 <sup>+</sup>	19.9(3)			TDPAD	1988St10
	5929 + $y$	164 ns	(55/2 <sup>+</sup> )	16.61(14)			TDPAD	1988St10
	0	3.96 s	5/2 <sup>+</sup>	−0.442(5)		<sup>209</sup> <sub>86</sub> Rn	CFBLS, R	1988Ki03
					+0.93(9)		CFBLS, R	1988NeZZ
					+1.15(12)		CFBLS	1985Ne99
					−0.38(4)	<sup>209</sup> <sub>86</sub> Rn	CFBLS	1988Ki03
					−0.47(5)		CFBLS, R	1988NeZZ
							CFBLS	1985Ne99
							IPAC	1970Or02
						<sup>209</sup> <sub>86</sub> Rn	CFBLS	1988Ki03
<sup>222</sup> <sub>86</sub> Rn	186	0.32 ns	2 <sup>+</sup>	+0.92(14)			CFBLS	1988NeZZ
<sup>223</sup> <sub>86</sub> Rn	0	23.2 m	7/2	−0.776(8)			CFBLS	1988NeZZ
<sup>225</sup> <sub>86</sub> Rn	0	4.5 m	7/2 <sup>−</sup>	−0.696(8)		<sup>209</sup> <sub>86</sub> Rn	CFBLS	1988Ki03
					+0.84(8)		CFBLS	1988NeZZ
<sup>207</sup> <sub>87</sub> Fr	0	14.8 s	9/2 <sup>−</sup>	+3.89(8)		<sup>211</sup> <sub>87</sub> Fr	ABLS	1985Co24
<sup>208</sup> <sub>87</sub> Fr	0	58.6 s	7 <sup>+</sup>	+4.75(10)		<sup>211</sup> <sub>87</sub> Fr	ABLS	1985Co24
							ABLS	1986Ek02
<sup>209</sup> <sub>87</sub> Fr	0	50 s	9/2 <sup>−</sup>	+3.95(8)		<sup>211</sup> <sub>87</sub> Fr	ABLS	1985Co24
							ABLS	1986Ek02
<sup>210</sup> <sub>87</sub> Fr	0	3.2 m	6 <sup>+</sup>	+4.40(9)		<sup>211</sup> <sub>87</sub> Fr	ABLS	1985Co24
					−0.24(2) st		ABLS	1985Co24
<sup>211</sup> <sub>87</sub> Fr	0	3.1 m	9/2 <sup>−</sup>	+4.00(8)			ABLS	1985Co24
					+0.19(2) st		AB/D	1986Ek02
					−0.19(3) st		ABLS	1985Co24
	2423	146 ns	29/2 <sup>+</sup>	15.37(15)			TDPAD	1986By01
					−1.1(2)	<sup>213</sup> <sub>87</sub> Fr 2538	LEMS	1991Ha02
	4657	123 ns	45/2 <sup>−</sup>	24.3(2)			TDPAD	1986By01
					−2.0(6)	<sup>213</sup> <sub>87</sub> Fr 2538	LEMS	1991Ha02

(continued on next page)

Table 1 (continued)

Nucleus	$E$ (level)	$\tau_{1/2}$	$I^\pi$	$\mu$ (nm) <sup>*</sup>	$Q$ (b)	Ref. Std.	Method	Reference
<sup>212</sup> <sub>87</sub> Fr	0	19.3 m	5 <sup>+</sup>	+4.62(9) +4.62(9)	−0.10(1) st	<sup>211</sup> <sub>87</sub> Fr	CFBLS	1987Du13
						<sup>211</sup> <sub>87</sub> Fr	ABLS	1985Co24
							ABLS	1985Co24
	1551	27 $\mu$ s	11 <sup>+</sup>	9.89(4)	0.84(13) −0.80(12)	<sup>213</sup> <sub>87</sub> Fr 2538 <sup>213</sup> <sub>87</sub> Fr 2538	SOPAD	1977Be56
	2492	604 ns	(15 <sup>−</sup> )	+15.65(12) 15.60(15)			TDPAD	1989By01
							TDPAD	1986By01
							TDPAD	1990By03
	4834	4.2 ns	22 <sup>+</sup>	22(4)			LEMS	1991Ha02
	5854	312 ns	(27 <sup>−</sup> )	21.9(3)			TDPAD	1986By01
							TDPAD	1986By01
							TDPAD	1990By03
							LEMS	1991Ha02
							CFBLS	1987Du13
							ABLS	1985Co24
<sup>213</sup> <sub>87</sub> Fr	0	34.7 s	9/2 <sup>−</sup>	+4.02(8) +4.02(8)	−0.14(2) st	<sup>211</sup> <sub>87</sub> Fr	CFBLS	1987Du13
						<sup>211</sup> <sub>87</sub> Fr	ABLS	1985Co24
							ABLS	1986Ek02
	1411	18 ns	17/2 <sup>−</sup>	7.5(14)	−2.2(5)	<sup>213</sup> <sub>87</sub> Fr 2538 <sup>213</sup> <sub>87</sub> Fr 2538 <sup>213</sup> <sub>87</sub> Fr 2538	ABLS	1985Co24
	1590	499 ns	21/2 <sup>−</sup>	9.4(2) 9.32(3)			TDPAD	1986By01
							TDPAD	1986By01
							TDPAD, R	1977Be56
								1978Ha50
	2538	243 ns	29/2 <sup>+</sup>	+15.30(7) 15.23(14) 15.22(3)			TDPAD	1989By01
					0.8(2)	<sup>213</sup> <sub>87</sub> Fr 2538 <sup>213</sup> <sub>87</sub> Fr 2538 <sup>213</sup> <sub>87</sub> Fr 2538 <sup>213</sup> <sub>87</sub> Fr 2538 <sup>213</sup> <sub>87</sub> Fr 2538 <sup>213</sup> <sub>87</sub> Fr 2538	TDPAD	1986By01
							TDPAD	1977Be56
							TDPAD	1978Ha50
	4993	13 ns	45/2 <sup>−</sup>	23.2(7) 22.3(6)			TDPAD	1986By01
							TDPAD	1979Ho06
	8095	3.1 $\mu$ s	65/2 <sup>−</sup>	+22.6(2)			TDPAD	1989By01
<sup>214</sup> <sub>87</sub> Fr	640	103 ns	11 <sup>+</sup>	+5.62(7) K, d	−2.2(5)	<sup>213</sup> <sub>87</sub> Fr 2538	LEMS	1991Ha02
						<sup>213</sup> <sub>87</sub> Fr 2538	TDPAD	1994By01
						<sup>213</sup> <sub>87</sub> Fr 2538	LEMS	1995Ne06
	1663 or 1734	11 or 10 ns	14 <sup>−</sup> or 15 <sup>−</sup>	+8.5(4) K, d	0.8(2)	<sup>213</sup> <sub>87</sub> Fr 2538	TDPAD	1994By01
	4318 + $D$	8 ns	27 <sup>−</sup>	+19.7(8) K, d		<sup>213</sup> <sub>87</sub> Fr 2538	TDPAD	1994By01
	6477 + $D'$	108 ns	33 <sup>+</sup>	+22(3)		<sup>213</sup> <sub>87</sub> Fr 2538	TDPAD	1994By01
<sup>215</sup> <sub>87</sub> Fr			32 <sup>+</sup> or 33 <sup>+</sup>		2.2(5)	<sup>213</sup> <sub>87</sub> Fr 2538	LEMS	1995Ne06
	~1500	4 ns	(21/2) $\pm$ 1	$g = 0.33(10)$		<sup>213</sup> <sub>87</sub> Fr 2538	TDPAD	1984De16
	2016	4.7 ns	29/2 <sup>+</sup>	7(3)		<sup>213</sup> <sub>87</sub> Fr 2538	TDPAD	1984De16
	2251	5.3 ns	33/2 <sup>+</sup>	8(2)	+0.47(3) st	<sup>211</sup> <sub>87</sub> Fr	CFBLS	1987Du13
	3068	14.6 ns	39/2 <sup>−</sup>	9.2(2)		<sup>211</sup> <sub>87</sub> Fr	ABLS	1985Co24
			1 <sup>+</sup>	−0.67(1) −0.67(1)		<sup>211</sup> <sub>87</sub> Fr	ABLS, R	1985Co24
<sup>221</sup> <sub>87</sub> Fr	0	27.4 s			−0.98(6) st			1987Co19
						<sup>211</sup> <sub>87</sub> Fr	CFBLS	1987Du13
						<sup>211</sup> <sub>87</sub> Fr	ABLS	1985Co24
						<sup>211</sup> <sub>87</sub> Fr	ABLS, R	1985Co24
<sup>222</sup> <sub>87</sub> Fr	0	4.8 m	5/2 <sup>−</sup>	+1.58(3) +1.58(3)	+0.51(4) st	<sup>211</sup> <sub>87</sub> Fr	CFBLS	1987Du13
						<sup>211</sup> <sub>87</sub> Fr	ABLS	1985Co24
<sup>223</sup> <sub>87</sub> Fr	0	14.2 m	2 <sup>−</sup>	+0.63(1)	+1.17(1)	<sup>211</sup> <sub>87</sub> Fr	ABLS	1985Co24
						<sup>211</sup> <sub>87</sub> Fr	ABLS	1985Co24
<sup>224</sup> <sub>87</sub> Fr	0	21.8 m	3/2 <sup>(−)</sup>	+1.17(2)	+0.517(4) st	<sup>211</sup> <sub>87</sub> Fr	ABLS	1985Co24
						<sup>211</sup> <sub>87</sub> Fr	ABLS	1985Co24
<sup>225</sup> <sub>87</sub> Fr	0	3.3 m	1 <sup>(−)</sup>	+0.40(1)	+1.32(5) st	<sup>211</sup> <sub>87</sub> Fr	ABLS	1985Co24
						<sup>211</sup> <sub>87</sub> Fr	ABLS, R	1985Co24
<sup>226</sup> <sub>87</sub> Fr	0	3.9 m	3/2 <sup>−</sup>	+1.07(2)	−1.35(2) st	<sup>211</sup> <sub>87</sub> Fr	ABLS	1985Co24
						<sup>211</sup> <sub>87</sub> Fr	ABLS	1985Co24
<sup>227</sup> <sub>87</sub> Fr	0	48 s	1	+0.0712(14) +0.071(2)	+2.38(5) st	<sup>211</sup> <sub>87</sub> Fr	ABLS	1985Co24
						<sup>211</sup> <sub>87</sub> Fr	ABLS	1985Co24
<sup>228</sup> <sub>87</sub> Fr	0	2.4 m	1/2 <sup>+</sup>	+1.50(3)	+0.40(4) st	<sup>211</sup> <sub>87</sub> Fr	ABLS	1985Co24
	0	39 s	2 <sup>−</sup>	−0.76(2)		<sup>211</sup> <sub>87</sub> Fr	ABLS	1985Co24
<sup>209</sup> <sub>88</sub> Ra	0	4.7 s	5/2 <sup>−</sup>	+0.865(13)		<sup>213,225</sup> <sub>88</sub> Ra	CFBLS, R	1988Ah02
						<sup>221,3</sup> <sub>88</sub> Ra	CFBLS	1989Ne03



Table 1 (continued)

Nucleus	$E$ (level)	$\tau_{1/2}$	$I^\pi$	$\mu$ (nm) <sup>*</sup>	$Q$ (b)	Ref. Std.	Method	Reference
					+0.38(4) st		CFBLS	1988Ah02
<sup>211</sup> <sub>88</sub> Ra	0	13 s	5/2 <sup>−</sup>	+0.878(4)		<sup>213,225</sup> <sub>88</sub> Ra	CFBLS, R	1987We03
								1988Ah02
					+0.48(4) st	<sup>221,3</sup> <sub>88</sub> Ra	CFBLS	1987Ar20
					+0.46(5) st		CFBLS, R	1989Ne03
								1988Ah02
								1987We03
<sup>212</sup> <sub>88</sub> Ra	1958	10.9 $\mu$ s	8 <sup>+</sup>	7.10(7)		<sup>214</sup> <sub>88</sub> Ra 1864	SOPAD	1986Ko01
	2613	0.85 $\mu$ s	11 <sup>−</sup>	12.0(2)	$Q/Q_{\text{ref}} = 1.5(4)$		LEMS	1993Ne04
<sup>213</sup> <sub>88</sub> Ra	0	2.7 m	1/2 <sup>−</sup>	+0.613(2)		<sup>137</sup> <sub>56</sub> Ba	SOPAD	1986Ko01
							CFBLS	1987Ar20
								1988Ah02
	1770	2.1 ms	(17/2 <sup>−</sup> )	7.4(4)		<sup>214</sup> <sub>88</sub> Ra 1864	LEMS	1994Ne01
<sup>214</sup> <sub>88</sub> Ra	1865	67 $\mu$ s	8 <sup>+</sup>	7.08(3)	$Q/Q_{\text{ref}} = 1.21(8)$	<sup>214</sup> <sub>88</sub> Ra 1864	LEMS	1993Ne04
							SOPAD	1977Be56
								1978Ha50
	2683	295 ns	11 <sup>−</sup>	11.98(8)			TDPAD	1992St09
				11.94(11)			TDPAD	1979Ho06
	3478	279 ns	14 <sup>+</sup>	14.29(6)			TDPAD	1992St09
				14.31(13)			TDPAD	1979Ho06
	4147	225 ns	17 <sup>−</sup>	17.36(5)			TDPAD	1992St09
				17.48(12)			TDPAD	1979Ho06
<sup>215</sup> <sub>88</sub> Ra	6577	128 ns	(25 <sup>−</sup> )	16.5(3)			TDPAD	1992St09
	3757 + $x$	800 ns	(43/2 <sup>−</sup> )	15.78 (15)			SOPAD	1989Ra99
				15.61(6)			TDPAD	1998St24
				18.9(2)			TDPAD	1998St24
<sup>216</sup> <sub>88</sub> Ra	4567 + $x$	15 ns	(49/2 <sup>+</sup> )	$g(\text{average}) = 0.1(3)$			TDPAD	1990Sc29
	1508	0.5 ns	6 <sup>+</sup>	$g(\text{average}) = 0.1(3)$			TDPAD	1990Sc29
	1711	1.7 ns	8 <sup>+</sup>	+3(3)			TDPAD	1990Sc29
				+1(3)			IPAD	1984AdZT
	2026	0.6 ns	10 <sup>+</sup>	−1(3)			TDPAD	1990Sc29
	2679	0.8 ns	13 <sup>−</sup>	+9.3(10)			TDPAD	1990Sc29
	3763	5.3 ns	19 <sup>−</sup>	+9.7(6)			TDPAD	1985Ad09
				+18(5)			TDPAD	1990Sc29
	5170	6.6 ns	25 <sup>−</sup>	$g = 0.63(6)$			TDPAD	1985Ad09
<sup>221</sup> <sub>88</sub> Ra	0	30 s	25 <sup>−</sup> or 24 <sup>+</sup>	−0.180(2)		<sup>213,225</sup> <sub>88</sub> Ra	CFBLS, R	1988Ah02
								1987Ar20
					+1.98(11) st		CFBLS	1989Ne03
					+1.9(2) st		CFBLS, R	1988Ah02
								1987We03
<sup>223</sup> <sub>88</sub> Ra	0	11.44 d	3/2 <sup>+</sup>	+0.271(2)		<sup>213,225</sup> <sub>88</sub> Ra	CFBLS, R	1988Ah02
								1987Ar20
					+1.25(7) st		CFBLS	1989Ne03
					+1.19(12) st		CFBLS, R	1988Ah02
								1987We03
<sup>224</sup> <sub>88</sub> Ra	50	0.63 ns	3/2 <sup>−</sup>	+0.43(6)			IPAC	1970Le13
<sup>225</sup> <sub>88</sub> Ra	84	0.74 ns	2 <sup>+</sup>	+0.9(2)			IPAC	1973He13
	0	14.8 d	1/2 <sup>−</sup>	−0.7338(15)		<sup>137</sup> <sub>56</sub> Ba	CFBLS	1987Ar20
								1988Ah02
<sup>227</sup> <sub>88</sub> Ra	0	42.2 m	3/2 <sup>+</sup>	−0.404(2)		<sup>213,225</sup> <sub>88</sub> Ra	CFBLS, R	1988Ah02
								1987Ar20
					+1.58(11) st	<sup>221,3</sup> <sub>88</sub> Ra	CFBLS	1989Ne03
					+1.50(15) st		CFBLS, R	1988Ah02
								1987We03
<sup>229</sup> <sub>88</sub> Ra	0	4.0 m	5/2 <sup>(+)</sup>	+0.503(3)		<sup>213,225</sup> <sub>88</sub> Ra	CFBLS, R	1988Ah02
								1987Ar20
					+3.1(2) st	<sup>221,3</sup> <sub>88</sub> Ra	CFBLS	1989Ne03
					+3.0(3) st		CFBLS, R	1988Ah02
								1987We03
<sup>215</sup> <sub>89</sub> Ac	1621	30 ns	17/2 <sup>−</sup>	7.82(16)			TDPAD	1983De08
	1796	185 ns	21/2 <sup>−</sup>	9.7(2)			TDPAD	1983De08
	2438 + $x$	335 ns	29/2 <sup>+</sup>	15.1(3)			TDPAD	1983De08
<sup>217</sup> <sub>89</sub> Ac	0	69 ns	9/2 <sup>−</sup>	+3.83(5)			TDPAD	1985De14
	2013	740 ns	29/2 <sup>+</sup>	+5.03(7)			TDPAD	1985De14

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Nucleus	$E$ (level)	$\tau_{1/2}$	$I^\pi$	$\mu$ (nm) <sup>*</sup>	$Q$ (b)	Ref. Std.	Method	Reference
<sup>227</sup> <sub>89</sub> Ac	0	21.77 y	3/2 <sup>−</sup>	+1.1(1)			O	1955Fr26
					+1.7(2)		O	1955Fr26
<sup>229</sup> <sub>90</sub> Th	0	7340 y	5/2 <sup>+</sup>	+0.46(4)		<sup>239</sup> <sub>94</sub> Pu	O	1974Ge06
					+4.3(9)		O	1974Ge06
<sup>232</sup> <sub>90</sub> Th	gs band			$g(18-24) > g(10-16)$ , $g(\text{average}) = 0.28(2)$			TF	1982Ha03
<sup>228</sup> <sub>91</sub> Pa	0	22 h	(3 <sup>+</sup> )	3.5(5)			NO/S	1989He07
<sup>230</sup> <sub>91</sub> Pa	0	17.4 d	(2 <sup>−</sup> )	2.0(2)			NO/S	1989He07
<sup>231</sup> <sub>91</sub> Pa	0	3.3 × 10 <sup>4</sup> y	3/2 <sup>−</sup>	2.01(2)			ENDOR	1961Ax01
	84	44 ns	5/2 <sup>+</sup>		+0.7(2)	Est $Q_{91}^{231}\text{Pa}$	ME	1978Fr28
<sup>233</sup> <sub>91</sub> Pa	0	27.0 d	3/2 <sup>−</sup>	4.0(7) +3.4(8)			NO/S	1989Ra99
					−3.0(4)	Estimate	AB	1961Ma42
							AB	1961Ma42
<sup>233</sup> <sub>92</sub> U	0	1.6 × 10 <sup>5</sup> y	5/2 <sup>+</sup>	$\mu/\mu_{\text{ref}} = 1.5604(14)$ 0.59(5)		efg <sup>235</sup> <sub>92</sub> U	ABLS	1990Ga28
					$Q/Q_{\text{ref}} = 0.746(2)$	<sup>235</sup> <sub>92</sub> U	EPR	1983Lu10
						<sup>235</sup> <sub>92</sub> U	ABLS	1990Ga28
					3.663(8) a		Mu-X	1984Zu02
					0.64(3) a		Mu-X	1984Zu02
<sup>235</sup> <sub>92</sub> U	40	50 ps	7/2 <sup>+</sup>				Mu-X	1984Zu02
	0	7.0 × 10 <sup>8</sup> y	7/2 <sup>−</sup>	−0.38(3) −0.34(3) −0.46(3)			CFBLS	1983Ni08
							EPR	1983Lu10
							ABLDF	
					4.936(6) a		Mu-X	1984Zu02
					4.55(9) a		Mu-X	1973JP99
					1.87(3) a		Mu-X	1984Zu02
<sup>238</sup> <sub>92</sub> U	46	<60 ps	9/2 <sup>−</sup>				TF	1982Ha03
	gs band			$g(18-14) > g(10-16)$ , $g(\text{average}) = 0.37(2)$				
<sup>237</sup> <sub>93</sub> Np	0	2.1 × 10 <sup>6</sup> y	5/2 <sup>+</sup>	+3.14(4) ~+2.9			EPR, R	1970Le29
							ME	1968St03
					+3.866(6) a		Mu-X, Pi-X, ME	1987De10
								1969Du09
	60	68 ns	5/2 <sup>−</sup>	+1.68(3)		<sup>237</sup> <sub>93</sub> Np	ME	1968Du02
				+1.95(15)				1970Le29
							TDPAC	1967Gu08
					+3.85(4)	<sup>237</sup> <sub>93</sub> Np	ME	1968Pi02
<sup>239</sup> <sub>93</sub> Np	75	1.40 ns	5/2 <sup>−</sup>	+2.0(3)		<sup>237</sup> <sub>93</sub> Np 60	IPAC	1967Gu08
<sup>237</sup> <sub>94</sub> Pu	~2300	85 ns	(3/2)	−0.68(5)			TDPAD	1982Ra04
	~2600	1.1 μs		$g = +0.14(2)$			TDPAD	1974Ka06
<sup>239</sup> <sub>94</sub> Pu	0	2.4 × 10 <sup>4</sup> y	1/2 <sup>+</sup>	+0.203(4)			AB/D	1965Fa02
	8	36 ps	3/2 <sup>+</sup>		−2.319(7) a		Mu-X	1986Zu01
	57	101 ps	5/2 <sup>+</sup>		−3.345(13)			1986Zu01
	76	83 ps	7/2 <sup>+</sup>		−3.83(3)			1986Zu01
	285	1.12 ns	5/2 <sup>+</sup>	−1.3(3)			IPAC	1974Pa03
<sup>241</sup> <sub>94</sub> Pu	0	14.4 y	5/2 <sup>+</sup>	−0.683(15)		<sup>239</sup> <sub>94</sub> Pu	O	1969Ge04
					+6(2)		O	1964Ch10
<sup>239</sup> <sub>95</sub> Am	~2500	163 ns	(7/2 <sup>+</sup> )	(+ )2.6(2)			TDPAD	1985Ra28
<sup>241</sup> <sub>95</sub> Am	0	432.7 y	5/2 <sup>−</sup>	+1.58(1) +1.61(3)			ABLS	1990Iz01
							AB/D	1966Ar04
					+3.8(1.2)		R	1989De26
					+3.14(5)		ABLS	1990Iz01
					+4.2(13)		R	1988Be30
<sup>242</sup> <sub>95</sub> Am	0	16.0 h	1 <sup>−</sup>	+0.3879(15)		<sup>241</sup> <sub>95</sub> Am		

Table 1 (continued)

Nucleus	$E$ (level)	$\tau_{1/2}$	$I^\pi$	$\mu$ (nm) <sup>*</sup>	$Q$ (b)	Ref. Std.	Method	Reference
	84	2.3 ns	$5/2^+$	+2.9(2)	+4.2(13)	<sup>241</sup> <sub>95</sub> Am	O	1956Ma31
						<sup>243</sup> <sub>95</sub> Am	ME	1986Sa10
					4.1(12)	<sup>243</sup> <sub>95</sub> Am	ME	1989Ra99
<sup>243</sup> <sub>96</sub> Cm	0	28.5 y	$5/2^+$	0.40(8)		<sup>241</sup> <sub>95</sub> Am	EPR	1973Ab03
<sup>245</sup> <sub>96</sub> Cm	0	8500 y	$7/2^+$	0.5(1)		<sup>241</sup> <sub>95</sub> Am	EPR	1970Ab03
<sup>247</sup> <sub>96</sub> Cm	0	$1.6 \times 10^7$ y	$9/2^-$	0.36(7)		<sup>241</sup> <sub>95</sub> Am	EPR	1972Bo67
<sup>249</sup> <sub>97</sub> Bk	0	320 d	$7/2^+$	2.0(4)		<sup>241</sup> <sub>95</sub> Am	EPR	1972Bo67
<sup>253</sup> <sub>99</sub> Es	0	20.4 d	$7/2^+$	+4.10(7)			AB/D	1975Go05
					6.7(8) st		AB	1975Go05
<sup>255</sup> <sub>99</sub> Es	78	39.3 h	$2^+$	2.90(7)		<sup>253</sup> <sub>99</sub> Es	AB	1975Go05
					3.7(5) st	<sup>253</sup> <sub>99</sub> Es	AB	1975Go05

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