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A COMPILATION OF RESONANCE INTEGRALS

PART I, Z = 1–52 (HYDROGEN–TELLURIUM)

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The resonance integrals of reactor neutron capture reactions for nuclides up to Z = 52 are compiled, while the thermal cross-sections of the corresponding nuclides are also included. The original values from the literature and the normalized ones for the excess of 1/v tailing are presented in parallel. The physical meaning of resonance integral obtained by different experimental approaches is briefly discussed.

Introduction

Extensive measurements have been made of resonance integrals for the nuclides which yield radioactive isotopes by reactor neutron capture. Since the first compilation of resonance integrals by DRAKE,[9] many previously measured data have been further improved and also a large number of new data have been reported.[3] The data available in the literature until 1974 are compiled in this paper and given in Table 1, together with the thermal cross-section of the corresponding nuclides.

In a compilation of resonance integrals, it is found to be helpful to include some enunciation about the definition of the resonance integral in regard to different experimental approaches, because the differentiation of thermal and resonance neutrons in a reactor neutron spectrum is by no means complete with the use of a Cd-filter, therefore it is necessary to add appropriate corrections. Regardless which experimental approach is used, the measured value is reported under a common name "resonance integral", although the meaning of the physical quantity often differs very much with respect to the method used. The radiochemist, therefore, frequently faces the difficulty of evaluating adequately the reported value for his own experimental purpose.

Definition of resonance integral

The microscopic cross-section averaged over a pure 1/E flux is what we should define as the resonance integral expressed by

$$I = \int_{E_1}^{E_2} \sigma(E)\, dE/E \qquad \text{(for 1/E spectrum)} \tag{1}$$

where E_1 and E_2 are the lower and the upper limit of the 1/E flux, respectively. In the usual manner of determining the resonance integral, the activation is due to the reactor neutron spectrum which can be assumed to be the sum of two components, a Maxwellian distribution corresponding to T °K and a 1/E epithermal flux with lower limit μkT where k is the Boltzmann's constant and μ varies with the type of reactor. For D_2O reactors μ is about 5 and for some graphite reactors about 3 so that at T = 293.6 °K μkT will be equal to about 0.126 eV and 0.076 eV, respectively. The two spectra are continuous and overlap each other at the neutron energy of about 0.5 eV. When a nuclide is irradiated in this spectrum the activation result of the resonance integral must be corrected by subtracting the contribution of the Maxwellian component and thus the expression becomes

$$I'_{01} = \int_{\mu kT}^{\infty} [\sigma(E) - g\, \sigma_0 \sqrt{E_0/E}]\, dE/E = I_{01} - I_{01}(1/v) \tag{2}$$

where g is the parameter depending on the neutron temperature (see the section experimental measurements with Cd-filter), and $E_0 = 0.0253$ eV.

The usual experimental method of separating the thermal cross-section due to the Maxwellian spectrum and the resonance integral due to the 1/E spectrum is to irradiate a nuclide under the Cd-filter which absorbs neutrons below the effective Cd-cut-off energy (E_c). Calculations of this cut-off energy for various shapes and thickness of the Cd-filter have been made by several authors.[120–122] By this calculation we observe that a small cylindrical Cd-filter with 1 mm thickness has a cut-off energy of about 0.55 eV. Under this condition the resonance integral is divided in two parts: one between μkT and E_c and the other from E_c to ∞, so that the Eq. (2) reads

$$I'_{01} = \int_{\mu kT}^{E_c} [\sigma(E) - g\, \sigma_0 \sqrt{E_0/E}]\, dE/E + \int_{E_c}^{\infty} [\sigma(E) - g\, \sigma_0 \sqrt{E_0/E}]\, dE/E =$$

$$= [\Delta I_0 - \Delta I_0(1/v)] + [I_0 - I_0(1/v)] = \Delta I'_0 + I'_0 \tag{3}$$

where I_0 is the epicadmium resonance integral excluding the 1/v part and $\Delta I_0'$ the part, shielded by a Cd-filter, which depends on the neutron temperature and is negligibly small for nuclides obeying the 1/v law in the thermal energy region. However, for those nuclides where a resonance peak lies near the cut-off energy, such as ^{151}Eu, ^{176}Lu, ^{182}Ta, ^{191}Ir, ^{231}Pa, ^{239}Pu etc, the value of $\Delta I_0'$ becomes very large and cannot be neglected. When the resonance peak appears near the cut-off energy ($E_r \cong E_c$) $\Delta I_0'$ can be calculated from the expression:[99]

$$\Delta I_0'/I_0' = (\Gamma/\pi\ E_r)\ [2/\sqrt{E_r}(\sqrt{E_c} - \sqrt{\mu kT}) - (g - 1)\ \sqrt{E_r}\ (1/\sqrt{\mu kT} - 1/\sqrt{E_c})] \tag{4}$$

where Γ and E_r are the resonance width and the resonance energy, respectively. Since $\Delta I_0'$ is a temperature dependent term, its evaluation must follow the temperature of the neutron spectrum.

The reported literature data of the epicadmium resonance integral represent either the value of I_0' or I_0 which then includes the 1/v part $[I_0(1/v)]$. The 1/v tailing can be easily calculated if the cut-off energy is known:

$$I_0(1/v) = \int_{E_c}^{\infty} g\ \sigma_0\ \sqrt{E_0/E}\ dE/E \approx 2\ g\ \sigma_0\ \sqrt{E_0/E_c} \tag{5}$$

Experimental measurements with Cd-filter

Westcott method

According to WESTCOTT[121] the reaction rate per target atom is given by

$$R = \Phi\ \hat{\sigma} = \Phi\ \sigma_0\ [g(T) + r\sqrt{T/T_0}\ s_0] \tag{6}$$

where Φ – neutron flux defined as the total neutron density times the 2200 m/sec velocity;
$\hat{\sigma}$ – effective cross-section;
σ_0 – thermal cross-section for 2200 m/sec neutrons;
$g(T)$ – parameter which represents the departure of the cross-section from the 1/v law in the thermal region (g = 1 if the nuclide obeys the 1/v law in this energy region) and which can be calculated from the expression

$$g(T) = (1/\sigma_0\ v_0)\ \int_0^{\infty}\ [(4/\sqrt{\pi})(v^3/v_T^3)\ \exp(-v^2/v_T^2)]\ \sigma(v)dv \tag{7}$$

where $r\sqrt{T/T_0}$ – epithermal index which denotes the strength of the epithermal flux ($r\sqrt{T/T_0} = 0$ in a pure thermal flux) and which can be determined with the knowledge of the Cd-ratio (CR) of a monitor nuclide

$$r\sqrt{T/T_0} = g/[(CR - 1)\, s_0 + 4\, g\, CR \sqrt{E_0/\pi\, E_c}] \qquad (8)$$

where s_0 – parameter which represents the ratio of the resonance integral and the thermal cross-section, such that

$$s_0 = \frac{2}{\sqrt{\pi}\,\sigma_0} \int_{\mu kT}^{\infty} [\sigma(E) - g\,\sigma_0 \sqrt{E_0/E}]\, dE/E = (2/\sqrt{\pi})\,(I'_{01}/\sigma_0) \qquad (9)$$

The resonance integral (I'_0) can then be simply determined by measuring the Cd-ratio of the nuclide of interest at the irradiation position where the epithermal index is already known

$$s_0 = (2/\sqrt{\pi})\,(I'_0/\sigma_0) = [1/(CR - 1)]\,(g/r\sqrt{T/T_0} - 4\, g\, CR \sqrt{E_0/\pi\, E_c}) \qquad (10)$$

The epithermal index can be determined either with Eq. (8) or from the irradiation without Cd-cover of two different monitor nuclides, one sensitive to thermal activation and the other sensitive to epithermal activation[117,127,128]

$$r\sqrt{T/T_0} = (g_1\,\sigma_{01} - g_2\,\sigma_{02}\,R_{1/2})/(s_{02}\,\sigma_{02}\,R_{1/2} - s_{01}\,\sigma_{01}) \qquad (11)$$

where $R_{1/2} = \hat{\sigma}_1/\hat{\sigma}_2$

which may easily be determined by the activity ratio of monitor 1 and monitor 2.

Normal method

A method, theoretically less rigorous, but commonly used[120,61] defines the reaction rate by:

$$R = \Phi_{th}\,\sigma_{th} + \Phi_{epi}\,I_0 \qquad (12)$$

where σ_{th}, I_0 – subcadmium cross-section and the epicadmium cross-section, respectively;

Φ_{th} – neutron flux defined as the thermal neutron density times the 2200 m/sec neutron velocity;

Φ_{epi} – epithermal flux per unit lnE.

From the knowledge of the Cd-ratio of a monitor nuclide the ratio of the epicadmium flux to subcadmium flux can be determined as

$$\frac{\Phi_{epi}}{\Phi_{th}} = \frac{\sigma_{th}}{I_0(CR - 1)} \tag{13}$$

From Eqs (6) and (12) it follows that:

$$\sigma_{th} = g\,\sigma_0 + \frac{\Phi_{epi}}{\Phi_{th}}\,(1 - 2\sqrt{E_0 - E_c})\,g\,\sigma_0 \tag{14}$$

or

$$\sigma_{th} = g\,\sigma_0 + \frac{\Phi_{epi}}{\Phi_{th}}\,[\Delta I_0' - I_0(1/v)] \tag{14/1}$$

The quantity $[\Delta I_0' - I_0(1/v)]$ results in a positive or negative value depending on whether a nuclide follows the 1/v law or not. When the activation is performed in a reactor neutron spectrum with low epithermal flux ($\Phi_{epi} \ll \Phi_{th}$), $\sigma_{th} \approx g\,\sigma_0$. The epicadmium resonance integral including the 1/v tailing can then be determined with the knowledge of the Cd-ratios for the nuclide of interest (x) and monitor (s):

$$I_{ox} = I_{os}\,[(CR - 1)_s\,\sigma_{thx}]/[(CR - 1)_x\,\sigma_{ths}] \tag{15}$$

Many authors often assume $\sigma_{th} = \sigma_0$ to calculate the epicadmium resonance integral (I_0). However, such an assumption is not completely justified, unless the nuclide obeys the 1/v law and the activation is undertaken in a well thermalized neutron spectrum ($\Phi_{epi} \ll \Phi_{th}$). For obvious reasons, it is clear that the epicadmium resonance integral thus determined should not be considered as a constant physical parameter. The quantity of the 1/v tailing included in the epicadmium resonance integral varies with respect to the Cd-cut-off energy (E_c) which is a function of the thickness of Cd, its shape, neutron energy and angle of incidence, and also to the neutron temperature (g) [see Eq. (5)]. This phenomenon is well demonstrated in the literature.[125]

Experimental measurement without Cd-filter

When the evaluation of the resonance integral is very sensitive to the Cd-cut-off energy (E_c) due to the presence of low energy resonances which contribute significantly to the total resonance integral, the use of a Cd-filter does not lead to an appropriate differentiation of the thermal cross-section and the resonance integral, but on the contrary, the measured value of the resonance integral is sharply reduced by the absorption of neutrons near the Cd-cut-off energy. The solution to this problem relies upon the special method which differentiates the neutron spectrum without the use of a Cd-filter but with knowledge of the relationship between the two different neutron spectra.[117]

Following Eq. (6) it is appreciated that the effective cross-section varies with the change of g and $r\sqrt{T/T_0}$, which are the temperature dependent quantities. When irradiation is performed in two different neutron spectra having a different neutron temperature and epithermal component, the constant value s_0 can be determined from the knowledge of the ratio between two different effective cross-sections, provided that g and $r\sqrt{T/T_0}$ are known for two spectra.

$$s_0 = (2/\sqrt{\pi})\ (I'_{01}/\sigma_0) = (R_{I/II}\ g_{II} - g_I)/[(r\sqrt{T/T_0})_I - R_{I/II}(r\sqrt{T/T_0})_{II}] \qquad (16)$$

where $R_{I/II} = \hat{\sigma}_I/\hat{\sigma}_{II}$ from two different irradiation positions. With Eq. (16) it is possible to determine directly the I'_{01} value, which, otherwise, can only be evaluated through tedious and approximate corrections for the neutron attenuation, absorption and perturbation by the Cd-filter used. The g value for various temperatures can be evaluated by the relation[124,126]

$$g(T) = \frac{2}{\sqrt{\pi}\ \sqrt{E_0}\ \sigma_0} \int_0^\infty \sqrt{E}\ \sigma(E)\ \sqrt{E/E_T}\ \exp(-E/E_T)\ dE/E_T \qquad (17)$$

where $E_0 = 0.0253$ eV, $E_T = E_0 T/T_0$, $T_0 = 293.6$ °K.

Explanation for Table 1

Columns

Column 1: Element and atomic number.

Column 2: Mass number of nuclides.

Column 3: Percent abundance of natural nuclides; data with asterisk represent the half-life of radioactive nuclides.

Column 4: Half-life of A+1 nuclides.

Column 5: Isomeric state (m) and ground state (g). Data in brackets signify the percent isomeric transition of the upper to the next lower state. The sum $g + x_1 m_1 + x_2 m_2 + \ldots$ indicates the sum of

$\sigma_0(g) + x_1 \ \sigma_0(m_1) + x_2 \ \sigma_0(x_2) + \ldots$
or
$I_0(g) + x_1 \ I_0(m_1) + x_2 \ I_0(m_2) + \ldots$

where $x_1, x_2, \ldots$ are the fractions of isomeric transitions.

Column 6: Thermal cross-section at 2200 m/sec neutron velocity. For some light nuclides the principal reaction with thermal neutron may be (n, p) or some other reactions. In such cases the value of σ_0 is given in brackets.

Column 7: References for thermal cross-sections. From Ref.[1] only recommended values are taken.

Column 8: Resonance integral, I_0, including the 1/v tailing $[I_0(1/v)]$. The physical meaning of this value can be understood from Eq. (3). Original values from literature are given in the column 15, and whenever original values are known only by I_0', the conversion to I_0 is made in accordance with Eq. (5) and Eq. (3). This normalization is made by the listed cut-off energy (E_c) given in literature; if this energy is uncertain, one assumes that $E_c = 0.55$ eV.

Column 9: Type of experimental measurements. For absorption measurements a pile oscillator technique is used. In activation measurements only one particular decay mechanism is generally measured and may or may not be proportional to the total capture cross-section.

Column 10: Methods used in the experiment (see "Key of methods").

Column 11: Name of the first author and the year of publication.

Column 12: References for resonance integrals.

Column 13: Standard used.

Column 14: Notes for resonance integrals.

Column 15: Original literature values of resonance integrals (I_0 or I_0'). When the cross-sections of the standard nuclide used are other than recommended values, a normalization is made and the resulted value is given in the

Column 8. In this case the value I'_0 can be deduced from the normalized one in accordance with Eq. (3) and Eq. (5). For this purpose, the known cut-off energy is given. For the further explanation see "Key to notes".

Key to Methods

1 – Activation: Cd-ratio method; relative β or γ measurements of the unknown absorber to one or more standards.[120,121]

2 – Activation: Cd-ratio method; absolute activation measurements.[120,121]

3 – Activation: Method without Cd-filter.[117]

4 – Absorption: Pile oscillator comparison of the unknown absorber to a standard.

5 – Absorption: Mass spectrometric comparison of irradiated and not irradiated absorber.

6 – Absorption: Reactivity measurements using changes in critical height or period of a calibrated test reactor.

7 – Fission: Cd-ratio method with detection of specific fission products.

8 – Fission: Cd-ratio method with total fission products by γ-counting.

9 – Fission: Cd-ratio method using a fission counter as sample.

10 – Fission: Absolute determination of a specific fission product.

11 – Calculation: Calculated from measured cross-sections.

12 – Calculation: Calculated by theoretical forms (Breit-Wigner form or modified similar ones).

13 – Preferred value of resonance integral.

Key to Notes

1 – Conversion of the resonance integral from one form (I'_0) to the other (I_0) by the relation:

$$I_0 = I'_0 + 2\,g\,\sigma_0\,\sqrt{E_0/E_c}\,,$$

using I'_0 from the original literature and σ_0 from the same literature or the recommended value of Ref.[1] When author has given both I_0 and I'_0 values, they are given in columns 8 and 15, respectively.

2 – Normalized value referring to Au standard with σ_0 = 98.8 b and I_0 = 1551 b or to Co standard with σ_0 = 37.2 b and I_0 = 70 b, and given in column 8. The original value is given in column 15.

3 – Values corrected by DRAKE[9] and given in column 8. The original value is given in column 15.

4 – Original value taken from Ref.[9]

5 – Triple comparator method using the standards: Au, Co and In with the I_0 value of 1551 b, 75 b and 258 b, respectively. Principle of this method is no other than the technique for determining the epithermal index by the irradiation of two unshielded monitor nuclides [Eq. (11)].

6 – Original value taken from Ref.[10]

7 – Original value taken from Ref.[40]

8 – Original value taken from Ref.[3]

9 – Original value taken from Ref.[94]

10 – Method using the manganese bath technique (Ref.[40])

11 – Original value taken from Ref.[78]

Table 1

Compilation of resonance integrals

Target nuclide		A+1 nuclide		Thermal cross-section, σ_0		Resonance integral, I_0							
Z-Symbol-A	Abundance, % or T	T	Isomeric state and IT, %	Value, barns	Ref.	Value, barns	Type	Method	Author (year)	Ref.	Standard	Notes	Remarks
1-H -nat	-	-	-	(0.332±0.02)	1								
1	99.9852	-		(0.332±0.02)	1								
2	0.0148	12.262 y		$(0.5\pm0.1)10^{-3}$	1								
3	*12.262 y			$<6.7\ 10^{-6}$	1								
2-He -nat	-	-	-	0.0	2								
3	$1.3\ 10^{-4}$	-		$0.1\ 10^{-3}$	1								
4	~100			0.0	2								
3-Li -nat	-	-	-	0.038	1	(28.)	abs	4	Macklin(1956)	4	Au(1558)	4	E_c=0.4
				(70.7±0.7)	1								
6	7.42	-		0.045±0.010	1								
				(953)	2								
7	92.58	0.85 s		0.037±0.004	1								
4-Be -9	100	$2.5\ 10^{6}$y		0.0095±0.001	1								
7	*53.6 d			(54000)	2								

Table 1 (cont.)

Target nuclide		A+1 nuclide		Thermal cross-section, σ_0		Resonance integral, I_0							
Z-Symbol-A	Abundance, % or T	T	Isomeric state and IT, %	Value, barns	Ref.	Value, barns	Type	Method	Author (year)	Ref.	Standard	Notes	Remarks
5-B -nat	-	-	-	(759 ± 2)	1	(280 ± 40)	abs	5	Klimentov(1957)	5	Li(32.2)		
10	19.8	-		(3.837 ± 1.0)	1								
11	80.2	0.025 s		0.005	2								
6-C -nat	-	-	-	0.0034 ± 0.0002	1								
12	98.892	-		0.0034 ± 0.0003	1								
13	1.108	5730 y		0.0009 ± 0.0002	1								
7-N -nat	-	-	-	0.075 ± 0.0075	1	(4.8 ± 2.4)	abs	5	Klimentov(1957)	5	Li(32.2)		
14	99.635	-		0.075 ± 0.0075	1								
				(1.81 ± 0.05)	1								
15	0.365	7.14 s		$2.4\ 10^{-5}$	2								
8-O -nat	-	-	-	$0.178\ 10^{-3}$	1								
16	99.759	-		$0.178\ 19^{-3}$	1								
17	0.037	-		(0.235 ± 0.01)	1								
18	0.204	21.1 s		$0.22\ 10^{-3}$	2	$(0.81\pm0.04)10^{-3}$	act	1	Blaser (1971)	6	Na(0.534)		$I'_o=0.74\ 10^{-3}$
				$(0.16\pm0.01)10^{-3}$	6								
9-F -19	100	11.56 s		0.0098 ± 0.0007	1	2.3 ± 0.5	abs	5	Klimentov(1957)	5	Li(32.2)		
						0.039 ± 0.001	act	1	V.D.Linden(1972)	7	Au,Co,In	5	$E_o=0.55$

Table 1 (cont.)

Target nuclide		A+1 nuclide		Thermal cross-section, σ_0		Resonance integral, I_0							
Z-Symbol-A	Abundance, % or T	T	Isomeric state and IT, %	Value, barns	Ref.	Value, barns	Type	Method	Author (year)	Ref.	Standard	Notes	Remarks
10-Ne -nat.	-	-	-	(0.032±0.009)	1								
20	90.92	-		0.038±0.008	8								
21	0.257	-		(96±3)	1								
22	8.82	37.6 s		0.04	2								
11-Na 23	100	0.02 s	m (IT = ?)	0.4±0.03	1								
		14.96 h	g + ? m	0.534±0.05	1	0.231	act	1	Harris (1950)	18	Au (1337)	2	$I_o = 0.21$
				0.529±0.07	16	0.223	act	1	Macklin (1956)	4	Au (1558)	3	$I_o = 0.24$
						0.460	act		Wolf (1960)	11		1,6	$I'_o = 0.22$
						0.314	act	1	Dahlberg (1961)	12	Au (1490)	3	$I'_o=0.07\pm0.01$
						0.517	act	1	Ben-David (1962)	13	Au (1607)	3	$I_o = 0.525$
						0.315	act	1	Baumann (1963)	14	Au (1490)	3	$I'_o=0.075\pm0.01$
						0.32 ± 0.03	act	1	Borchardt (1967)	15	Au (1551)		$I'_o = 0.08$
						0.318	capt	2	Ryves (1970)	16	Au (1558)	1	$I'_o=0.08\pm0.012$
						0.35 ± 0.01	act	1	V.D. Linden (1972)	7	Au,Co,In	5	$E_c = 0.55$
						0.291	act	1	Steinnes (1972)	17	Au (1550)		$E_c = 0.5$
			g + m			0.251	abs	4	Macklin (1956)	4	Au (1558)	3	$I_o = 0.27$
						0.311	calc	12	Stephenson (1965)	19	-		$E_c = 0.5$
						0.288	calc	12	Simons (1970)	20	-		
22	*2.62y			35000±1200	21	$(203\pm27)\,10^3$	capt	1	Sims (1967)	21	Co (69.9)		$I'_o=(191\pm25)10^3$
				(90000±10000)	1								

Table 1 (cont.)

Target nuclide		A+1 nuclide		Thermal cross-section, σ_0		Resonance integral, I_0							
Z-Symbol-A	Abundance, % or T	T	Isomeric state and IT, %	Value, barns	Ref.	Value, barns	Type	Method	Author (year)	Ref.	Standard	Notes	Remarks
12-Mg -nat	-	-	-	(0.063±0.005)	1	(0.92)	abs	4	Macklin (1956)	4	Au (1558)	3	I_0 = 0.9
						(0.07)	abs	4	**Tattersall(1960)**	22	Au (1513)	3	I'_0=0.045±0.02
24	78.60	-		(0.03)	2								
25	10.11	-		(0.3)	2								
26	11.29	9.46 m		0.027	2	0.0252	capt	2	Ryves (1970)	16	Au (1558)	1	I'_0=0.008±0.0012
				0.0382±0.0008	16	0.033±0.002	act	1	V.D. Linden (1972)	7	Au,Co,In	5	E_c = 0.55
				0.035±0.002	59	**0.027±0.003**	**act**	1	**Gryntakis(1975)**	59	**Au(1551)**		**I'_0 =0.011±0.002**
13-Al -27	100	2.3 m		0.235±0.005	1	0.154	act	1	Harris (1950)	18	Au (1337)	2	I_0 = 0.14
				0.233	16	0.191	abs	4	Macklin (1956)	4	Au (1558)	3	I_0 = 0.18
				0.232±0.003	59	0.171	act	1	Macklin (1956)	4	Au (1558)	3	I_0 = 0.16
						<0.186	abs	4	Rose (1958)	23	Au (1510)	3	I'_0 < 0.08
						0.171	capt	2	Ryves (1970)	16	Au (1558)	1	I'_0=0.066±0.009
						0.178	act	1	Breitenhuber(1970)	24	Au (1553)		E_c = 0.4
						0.245±0.005	act	1	V.D. Linden (1972)	7	Au,Co,In	5	E_c = 0.55
						0.175±0.006	act	1	Gryntakis (1975)	59	Au (1551)		I'_0=0.070±0.005
14-Si -nat	-	-	-	(0.16)	86	(0.58)	abs	4	Macklin (1956)	4	Au (1558)	3	I_0 = 0.5
28	92.18	-		(0.08)	2								
29	4.71	-		(0.3)	2								
30	3.12	2.62 h		0.11	2	0.66±0.03	act	1	V.D. Linden (1972)	7	Au,Co,In	5	E_c = 0.55
				0.108	16								

Table 1 (cont.)

Target nuclide		A+1 nuclide		Thermal cross-section, σ_0		Resonance integral, I_0							
Z-Symbol-A	Abundance, % or T	T	Isomeric state and IT, %	Value, barns	Ref.	Value, barns	Type	Method	Author (year)	Ref.	Standard	Notes	Remarks
15-P 31	100	14.3 d		0.190±0.010	1	0.11	act	1	Harris (1950)	18	Au (1337)	2	I_o = 0.10
						<2	abs	4	Macklin (1956)	4	Au (1558)	4	E_c = 0.4
						0.092	act	1	Macklin (1956)	4	Au (1558)	4	E_c = 0.4
16-S -nat	-	-	-	(0.520±0.030)	1	(0.64)	abs	4	Macklin (1956)	4	Au (1558)	3	I_o = 0.6
32	95.0	-		(0.007±0.003)	1								
33	0.760	-		(0.002±0.001)	1								
34	4.220	87.9 d		0.270±0.040	1	0.554±0.023	act	1	Sims (1969)	25	Co(69.9)		I'_o=0.369±0.015
36	0.014	5.07 m		0.14	2								
17-Cl -nat	-	-	-	(33.2)	1	(12.1)	abs	4	Macklin (1956)	4	Au (1558)	3	I_o = 12.
						(12.8±1.7)	abs	5	Klimentov (1957)	5	Li (32.2)		
						(14±0.7)	abs	11	Kashukeev (1961)	26		4	
35	75.33	$3.08 10^5$y		44±2	1	<20	capt	1	Sims (1969)	25	Co (69.9)		I'_o = <5
				41.8	25								
37	24.47	0.74 s	m (IT=100)	0.005±0.003	1								
		38 m	g										
			g + m	0.430±0.100	1	0.310	capt	2	Ryves (1970)	16	Au (1558)	1	I'_o=0.120±0.06
				0.423±0.007	16	0.213	act	1	V.D. Linden(1972)	7	Au,Co,In	5	E_c = 0.55
36	*3.08 10^5y	-		100±30	1								

Table 1 (cont.)

Target nuclide		A+1 nuclide		Thermal cross-section, σ_0		Resonance integral, I_0							
Z-Symbol-A	Abundance, % or T	T	Isomeric state and IT, %	Value, barns	Ref.	Value, barns	Type	Method	Author (year)	Ref.	Standard	Notes	Remarks
18-Ar -nat	-	-	-	(0.630±0.020)	1								
36	0.337	31.1 d		(0.00552)	1								
				6	2								
38	0.063	269 y		0.8	2								
40	99.6	1.83 h		(0.61)	1	(0.42)	abs	1	French (1965)	27	Au (1534)	3	I_o=0.41±0.03
19-K -nat	-	-	-	(2.10±0.1)	1	(1.13)	abs	4	Macklin (1956)	4	Au (1558)	3	I_o = 1.1
						(3.5±1.1)	abs.	5	Klimentov (1957)	5	Li (32.2)		
39	93.22	1.26 10^9y		2.0	2								
40	0.118 *1.26 10^9y	-		70	2								
41	6.77	**12.36 h**		1.2	2	0.96±0.03	act	2	Köhler (1967)	28	Au (1543)		I'_o=0.51±0.07
				1.2±0.1	28	1.43	capt	2	Ryves (1970)	16	Au (1558)	1	I'_o=0.77±0.15
				1.46±0.03	16	0.98	act	1	De Corte (1971)	29	Au,Co,In	5	
				1.28±0.06	30	1.35±0.06	act	1	V.D. Linden(1972)	7	Au (1551)	5	E_c = 0.55
						1.28	act	1	Kim (1972)	30	Au (1551)	1	I'_o=0.70±0.03
20-Ca -nat	-	-	-	(0.43)	86	(1.87)	abs	4	Macklin (1956)	4	Au (1558)	3	I_o = 2.
40	96.97	8.10^4 y		(0.23)	2								
42	0.64	-		(42)	2								

Table 1 (cont.)

Target nuclide		A+1 nuclide		Thermal cross-section, σ_0		Resonance integral, I_0							
Z-Symbol-A	Abundance, % or T	T	Isomeric state and IT, %	Value, barns	Ref.	Value, barns	Type	Method	Author (year)	Ref.	Standard	Notes	Remarks
43	0.145	-											
44	2.06	165 d		0.7	2	0.56±0.01	act	1	Sims (1970)	31	Co (69.9)		I'_0=0.23±0.01
				0.88±0.01	31								
46	0.0033	4.53 d		0.25±0.10	17	0.32±0.12	act	1	Steinnes (1972)	17	Au (1550)		E_c = 0.5
				0.3	2								
48	0.185	8.8 m		1.1	2	0.90±0.01	act	1	V.D. Linden(1972)	7	Au,Co,In	5	E_c = 0.55
21-Sc-45	100	19.5 s	m (IT=100)	10	2								
		83.9 d	g	13	2								
			g + m	25±2	1	13.86	act	1	Harris (1950)	18	Au (1337)	2	I_0 = 12.6
						10.2	act	1	Macklin (1956)	4	Au (1558)	3	I_0 = 10.7
						10.2	calc	12	Simons (1970)	20	-		
						13±1	act	1	V.D. Linden(1972)	7	Au,Co,In	5	E_c = 0.55
						10.7	act	1	Steinnes (1972)	17	Au (1550)		E_c = 0.5
						14.2	act	1	Alian (1973)	125	Co (75)		E_c= 0.55
46	*83.9 d	3.43 d		8.3±1.4	66								
22-Ti -nat	-	-	-	(6.1±0.8)	1	(3.2)	abs	4	Macklin (1956)	4	Au (1558)	3	I_0 = 3
						(3.8)	abs	5	Klimentov(1957)	5	Li (32.2)		
46	7.99	-		(0.6)	2								
47	7.32	-		(1.7)	2								
48	73.99	-		(8.0)	2								
49	5.46	-		(1.9)	2								
50	5.25	5.79 m		0.179±0.003	16	0.118	capt	2	Ryves (1970)	16	Au (1558)	1	I'_0=0.038±0.011
						4.4±0.4	act	1	V.D. Linden(1972)	7	Au,Co,In	5	E_c = 0.55

Table 1 (cont.)

Target nuclide		A+1 nuclide		Thermal cross-section, σ_0		Resonance integral, I_0							
Z-Symbol-A	Abundance, % or T	T	Isomeric state and IT, %	Value, barns	Ref.	Value, barns	Type	Method	Author (year)	Ref.	Standard	Notes	Remarks
23-V -nat	-	-	-	5.06±0.06	1	3.3±0.8	abs	5	Klimentov(1957)	5	Li(32.2)		
						<3.88	abs	4	Tattersall(1960)	22	Au(1513)	3	$I'_0 < 1.6$
50	0.25 *6 10^{15}y	-		130	2								
51	99.75	3.75 m		4.9±0.3	1	2.2	act	1	Harris (1950)	18	Au(1337)	2	$I'_0=2.0$
				4.5±0.5	28	2.15	act	1	Macklin(1956)	4	Au(1558)	3	$I_0=2.2$
				4.93±0.06	16	2.58	act	1	Bardes (1961)	51	Au	1	$I'_0=0.38\pm0.16$
						2.17±0.08	act	2	Köhler (1967)	28	Au(1543)		$I'_0=0.46\pm0.27$
						2.56	act	1	Geiger (1967)	34	Au(1569)	1	$I'_0=0.36\pm0.10$
						2.69	capt	2	Ryves (1970)	16	Au(1558)	1	$I'_0=0.48\pm0.09$
						4.10±0.40	calc	12	Stieglitz(1971)	35	-		$E_c=0.5$
						2.9	act	1	V.D.Linden(1972)	7	Au,Co,In	5	$E_c=0.55$
24-Cr -nat	-	-	-	3.13	2	2.04	abs	4	Macklin(1956)	4	Au(1558)	3	$I_0=1.9$
						2.6±1	abs	5	Klimentov(1957)	5	Li(32.2)		
						1.5±0.1	abs	11	Kapchig.(1964)	36		4	
						1.58±0.16	calc	12	Stieglitz(1971)	35	-		$E_c=0.5$
50	4.31	27.8 d		17	2	10.4±0.4	capt	1	Sims (1968)	37	Co(69.9)		$I'_0=4.95\pm0.18$
				15.9	37	8.58±0.86	calc	12	Stieglitz(1971)	35	-		$E_c=0.5$
						8.30	act	1	De Corte (1971)	29	Au,Co,In	5	
						7.8±0.4	act	1	V.D.Linden	7	Au,Co,In	5	$E_c=0.55$
52	83.76	-		0.8	2	0.22±0.03	calc	12	Stieglitz(1971)	35	-		$E_c=0.5$
53	9.55	-		18	2	10.75±1.00	calc	12	Stieglitz(1971)	35	-		$E_c=0.5$
54	2.38	3.52 m		0.38	2	0.03±0.01	calc	12	Stieglitz(1971)	35	-		$E_c=0.5$

Table 1 (cont.)

Target nuclide		A+1 nuclide		Thermal cross-section, σ_0		Resonance integral, I_0							
Z-Symbol-A	Abundance, % or T	T	Isomeric state and IT, %	Value, barns	Ref.	Value, barns	Type	Method	Author (year)	Ref.	Standard	Notes	Remarks
25-Mn -55	100	2.576 h		13.3	1	14.0±0.03	act.		Lamb (1959)	38		6	
				13.3±0.2	28	10.78	act	1	Harris(1950)	18	Au(1337)	2	I_0=9.8
				13.25	40	11.6	act	1	Macklin(1956)	4	Au(1558)	3	I_0=11.8
						10.7	abs	4	Macklin(1956)	4	Au(1558)	3	I_0=10.8
						11.7±1.5	abs	5	Klimentov(1957)	5	Li(32.2)		
						10.5	abs	4	Rose (1958)	23	Au(1510)	3	I'_0=4.5±2.5
						15.3	abs	4	Tattersall(1960)	22	Au(1513)	3	I'_0=9.5±0.5
						13.7	act	1	Walker(1960)	39	Au(1525)	3	I'_0=7.8±0.8
						14.15	act	1	Dahlberg(1961)	12	Au(1490)	3	I'_0=8.15±0.6
						14.28	act	1	Jacks(1961)	41	Au	1,7	I'_0=8.3±0.5
						15.6±0.6	act	1	Feiner(1961)	44	Au	6	E_c=0.55
						13.48	act		Bardes(1962)	33	Au	1,7	I'_0=7.5±0.8
						17.6	act	1	Ben David(1962)	13	Au(1607)	3	I_0=18.2
						14	abs	4	Scoville(1962)	42	Au(1558)	4	
						14.0	act	1	Berreth(1962)	43	Au	6	
						14.6	act	1	Axton(1963)	45	Au(1500)	3	I'_0=8.6
						18.1±1.2	act	1	Baumann(1964)	14	Au(1530)	4	
						11.4	calc	12	Bresesti(1964)	46	-	6	
						18.1			Barall(1965)	47		6	I'_0=12.7
						15±1.4	act	1	Louwrier(1965)	48			E_c=0.56
						12.6±0.5	act	2	Köhler(1967)	28	Au(1543)		I'_0=7.55
						16.44	abs	4	Carre (1967)	49	Au(1540)	1	I'_0=10.5±1
						16.14	calc	12	Carre(1907)	49	-	1	I'_0=10.2
						12.8±1.1	act	1	Borchardt(1967)	15	Au(1551)		I_0=6.8
						13.7±0.7	act	1	Orvini(1968)	50	Au(1535)		E_c=0.55
						11.66	act		Ryves(1968)	40	H(6_{sc}=20)	10	I'_0=5.7±1.9
						14.1±0.6	act	2	Nanjyo(1970)	52	Au(1547)		E_c=0.63
						15.4	act	1	Breitenhuber(1970)	24	Au(1553)		E_c=0.55
						13.8±0.8	act	1	V.D. Linden(1972)	7	Au,Co,In	5	E_c=0.55

Table 1 (cont.)

Target nuclide		A+1 nuclide		Thermal cross-section, σ_0		Resonance integral, I_0							
Z-Symbol-A	Abundance, % or T	T	Isomeric state and IT, %	Value, barns	Ref.	Value, barns	Type	Method	Author (year)	Ref.	Standard	Notes	Remarks
26-Fe -nat	-	-	-	2.55±0.05	1	2.17	abs	4	Macklin(1956)	4	Au(1557)	3	I_o=2.1
						2.3±0.25	abs	4	**Spivak(1956)**	53	B		
						2.3±0.4	abs	5	Klimentov(1957)	3	Li(32.2)		
						1.65	abs	4	Rose(1958)	23	Au(1510)	3	I'_o=0.5±0.3
						1.86	abs	4	**Tattersall(1960)**	22	Au(1513)	3	I'_o=0.7±0.4
						2.26	abs	4	Carre(1967)	49	Au(1540)	1	I'_c=1.1±0.3
						1.86	calc	12	Moxon(1968)	54	-	1	I'_o=0.71
54	5.84	2.60 y		2.9	2								
56	91.68	-		2.7	2								
57	2.17	-		2.5	2								
58	0.31	45 d		1.2±0.1	1	1.15	act	1	Brune (1963)	55	Au(1490)	3	I'_o=0.58±0.16
				1.14	16	1.38	calc	12	Simons(1970)	20	-		
						0.66	act	1	De Corte(1971)	29	Au,Co,In	5	
						1.7±0.1	act	1	V.D.Linden(1972)	7	Au,Co,In	5	E_c=0.55
						1.27	act	1	Steinnes(1972)	17	Au(1550)		E_c=0.5
						1.17	**act**	**1**	**Alian (1973)**	**125**	**Co(75)**		**E_c=0.55**

Table 1 (cont.)

Target nuclide		A+1 nuclide		Thermal cross-section, σ_0		Resonance integral, I_0							
Z-Symbol-A	Abundance, % or T	T	Isomeric state and IT, %	Value, barns	Ref.	Value, barns	Type	Method	Author (year)	Ref.	Standard	Notes	Remarks
27-Co 59	100	10.47 m	m	20±2	1								
			(IT=99)	18.80±1.5	59	39.7±4.9	act	1	Gryntakis(1975)	59	Au(1551)		$I_o'=31.2\pm4.2$
		5.263 y	g	17±2	1								
				18.65±2.0	59	31.4±6.8	act	1	Gryntakis(1975)	59	Au(1551)		$I_o'=23.0\pm5.0$
			g + m	37.2±0.6	1	45.32	act	1	**Harris(1950)**	18	Au(1337)	2	$I_o=41.2$
				36.6	61	47.6	abs	4	Macklin(1956)	4	Au(1558)	3	$I_o=48$
				37.45±0.45	59	49.	act	1	Macklin(1956)	4	Au(1558)	3	$I_o=49.3$
						38.3±4	abs	5	Klimentov(1957)	3	Li(32.2)		
						70.	abs	4	**Tattersall(1960)**	22	Au(1513)		
						73.9	act	1	Johnston(1960)	56	Au(1565)	3	$I_o=74.8$
						81±4	act	1	Feiner(1960)	57	Au	6	
						61.1	act	1	Dahlberg(1961)	12	Au(1490)	3	$I_o=55.2$
						74.6	act	1	Berreth(1962)	43	Au	6	
						74.6	abs	4	Scoville(1962)	42	Au(1558)		
						71.4	act	1	Eastwood(1963)	58	Au(1535)	3	$I_o=69.8$
						67.0	calc	12	Jain (1963)	119	-	6	
						63.2	calc	12	**Bresesti(1964)**	46	-	6	
						64±8			Lesage(1966)	60	Au	8	
						67.42	abs	4	Carre(1967)	49	**Au(1540)**	1	$I_o'=50.5\pm4$
						67.12	calc	12	Carre(1967)	49	-	1	$I_o'=50.3\pm5$
						75.37	act	1	Kim(1968)	61	Au(1551)	1	$I_o'=58.9\pm0.8$
						69	act	2	Wall(1968)	62			$E_c=0.5$
						70.0	calc	12	Simons(1970)	20	-		
						70.3	abs	4	Hüttel(1971)	63	B(760.8)		
						75	act	1	V.D. Linden(1972)	7	Au,Co,In	5	$E_c=0.55$
						77±4	act	1	Steinnes(1972)	17	Au(1550)		$E_c=0.5$
						71.1±2.0	act	1	Gryntakis(1975)	59	Au(1551)		$I_o'=54.2\pm1.8$

Table 1 (cont.)

Target nuclide		A+1 nuclide		Thermal cross-section, σ_0		Resonance integral, I_0							
Z-Symbol-A	Abundance, % or T	T	Isomeric state and IT, %	Value, barns	Ref.	Value, barns	Type	Method	Author (year)	Ref.	Standard	Notes	Remarks
58	*9.2h	-		$(140\pm12)10^3$	64	$(550\pm220)10^3$	act	2	Hogg(1962)	64	Co(74)		
				$(136\pm10)10^3$	66	253800	act	1	Halperin(1964)	65	Co(75)	3	I_o=250000
				140000	67	821000	act	2	Kondurov(1967)	66	Co(37.5)		$I'_o=(760\pm160)10^3$
	~71 d	-		1650 ± 150	64	6890	abs	4	Elgart(1971)	68		8	
				2500	67								
60	*10.4m	99.0 m		58 ± 8	69	230 ± 50	act	2	Hogg(1966)	69	Co(74)		
				100	2								
	*5.27y	99.0 m		2.0 ± 0.2	69	4.3	act	2	Hogg(1966)	69	Co(74)		
				6	2								
28-Ni -nat	-	-	-	4.6 ± 0.1	1	4.03	abs	4	Macklin(1956)	4	Au(1558)	3	I_o=4.
						3.2 ± 0.5	abs	5	Klimentov(1957)	3	Li(32.2)		
						< 3.17	abs	4	Rose(1958)	23	Au(1510)	4	I'_o < 1.1
						2.13	abs	11	Kapchig.(1963)	71		3	$I'_o=0.06\pm0.02$
						3.87	abs		Prokhorov(1964)	70		8	$I'_o=1.8\pm0.4$
						3.07	abs	4	Carre(1967)	49	Au(1540)	1	$I'_o=1.0\pm0.4$
58	67.76	$8\ 10^4$ y		4.4	2								
60	26.16	-		2.6	2	2.10 ± 0.21	calc	12	Stieglitz(1971)	35	-		E_c=0.5
61	1.25	-		2	2								
62	3.66	92 y		15	2	9.6 ± 3.5	capt	1	Sims(1970)	31	Co(69.9)		$I'_o=4.2\pm1.5$
				14.2 ± 0.3	31								
64	1.16	2.564 h		1.50	2	1.11	capt	2	Ryves(1970)	16	Au(1558)	1	$I'_o=0.44\pm0.14$
				1.49 ± 0.03	16	0.87 ± 0.03	act	1	V.D. Linden(1972)	7	Au,Co,In	5	E_c=0.55
				1.58 ± 0.04	59	1.19 ± 0.07	act	1	Gryntakis(1975)	59	Au(1551)		$I'_o=0.48\pm0.05$

Table 1 (cont.)

Target nuclide		A+1 nuclide		Thermal cross-section, σ_0		Resonance integral, I_0							
Z-Symbol-A	Abundance, % or T	T	Isomeric state and IT, %	Value, barns	Ref.	Value, barns	Type	Method	Author (year)	Ref.	Standard	Notes	Remarks
29-Cu -nat	-	-	-	3.8±0.1	1	3.68	act	1	Harris(1950)	18	Au(1337)	2	I_o=3.35
						4.15	abs	4	Macklin(1956)	4	Au(1558)	3	I_o=4
						3.82	act	1	Macklin(1956)	4	Au(1358)	3	I_o=3.7
						3.3±0.3	abs	5	Spivak(1956)	53			
						3.7±0.8	abs	5	Klimentov(1957)	5	Li(32.2)		
						3.07	abs	4	Rose(1958)	23	Au(1510)	3	I'_o=1.2±0.5
						4.31	abs	11	Kapchig.(1963)	71		3	I'_o=2.6±0.3
						3.89	abs	4	Carre(1967)	49	Au(1540)	1	I'_o= 2.2±0.3
63	69.1	12.80 h		4.5	2	4.68	act	1	Macklin(1956)	4	Au(1558)	3	I_o=4.4
				4.4±0.2		5.745	act	1	Bennet(1961)	72		1,6	I'_o=3.72
						5.12	act	1	Dahlberg(1961)	12	Au(1490)	3	I'_o=3.09±0.15
						5.42	act	1	Baumann(1963)	14	Au(1490)	3	I'_o=3.17±0.18
						4.178	calc	12	Conolly(1963)	72	-	1,6	I'_o=2.153
						4.2	act	1	Anderson(1964)	32	Au(1555)	4	
						5.6±0.5	act	1	Borchardt(1967)	15	Au(1551)		I'_o=3.7
						4.48	capt	2	Ryves(1970)	16	Au(1558)	1	I'_o=2.5±0.2
						4.64	calc	12	Simons(1970)	20	-		
						6.1±0.3	act	1	V.D. Linden(1972)	7	Au,Co,In	5	E_c=0.55
65	30.9	5.10 m		2.3	2	2.52	abs	3	Harris(1950)	18	Au(1337)	2	I_o=2.3±0.23
				2.17±0.03		2.42	act	1	Macklin(1956)	4	Au(1558)	3	I_o=2.2
						2.64	act	1	Dahlberg(1961)	12	Au(1490)	3	I'_o=1.38±0.4
						2.855			Bennet(1961)	72		1,6	I_o=1.82±0.21
						2.63	act	1	Baumann(1963)	14	Au(1490)	3	I'_o=1.39±0.22
						2.15	capt	2	Ryves(1970)	16	Au(1558)	1	I'_o=1.17±0.12
						2.3±0.2	act	1	V.D. Linden(1972)	7	Au,Co,In	5	E_c=0.55
64	*12.80h	-		< 6000	66								
66	*5.10m	58.5 h		130	2								

Table 1 (cont.)

Target nuclide		A+1 nuclide		Thermal cross-section, σ_0		Resonance integral, I_0							
Z-Symbol-A	Abundance, % or T	T	Isomeric state and IT, %	Value, barns	Ref.	Value, barns	Type	Method	Author (year)	Ref.	Standard	Notes	Remarks
30-Zn -nat	-	-	-	1.10±0.04	1	2.	abs	4	Macklin(1956)	4	Au(1558)	4	
						3.4±0.8	abs	5	Klimentov(1957)	5	Li(32.2)		
						2.18	abs	4	Rose(1958)	23	Au(1510)	3	I_o'=1.6±0.2
						1.69	abs	4	Tattersall(1960)	22	Au(1513)	3	I_o'=1.18±0.16
64	48.89	245 d		0.46	1	0.91	act	1	Brune(1963)	55	Au(1490)	3	I_o'=0.67±0.14
				0.77	61	1.34±0.06	capt	1	Sims(1967)	73	Co(69.9)		I_o'=1.02±0.05
						1.45	act	1	Kim(1968)	61	Au(1551)	1	I_o'=1.10±0.05
						1.07	act	1	Ricabarra(1969)	74	Au(1551)	1	I_o'=0.86±0.09
						1.8±0.1	act	1	V.D.Linden(1972)	7	Au,Co,In	5	E_c=0.55
						1.43±0.10	act	1	Steinnes(1972)	17	Au(1550)		E_c=0.5
66	97.81	-											
67	4.11	-											
68	18.56	13.8 h	m	0.095	1	0.24	act	1	Brune(1963)	55	Au(1490)	3	I_o'=0.17±0.03
				0.072	61	0.17	act	1	Kim(1968)	61	Au(1551)	1	I_o'=0.14±0.01
				0.09	17	0.31	act	1	De Corte(1971)	29	Au,Co,In	5	
			(IT=100)			0.23±0.02	act	1	V.D.Linden(1972)	7	Au,Co,In	5	E_c=0.55
						0.25±0.03	act	1	Steinnes(1972)	17	Au(1550)		E_c=0.5
		57 m	g	1.0±0.1	1								
			g + m	1.095±0.15	74	4.10	act	1	Ricabarra(1969)	74	Au(1551)	1	I_o'=3.61±0.51
						3.50	calc	12	Ricabarra(1969)	74	-	1	I_o'=3.01
70	0.62	3.92 h	m	0.015±0.005	1								
		2.4 m	g	0.100±0.015	1								
			g + m	0.115±0.020	1								

Table 1 (cont.)

Target nuclide		A+1 nuclide		Thermal cross-section, σ_0		Resonance integral, I_0							
Z-Symbol-A	Abundance, % or T	T	Isomeric state and IT, %	Value, barns	Ref.	Value, barns	Type	Method	Author (year)	Ref.	Standard	Notes	Remarks
31-Ga -nat	-	-	-	2.89	75	11.7±2.7	abs	5	Klimentov(1957)	5	Li(32.2)		
69	60.2	21.1 m		1.9	2	8.81	act	1	Harris (1950)	18	Au(1337)	2	I_0=8.01
				1.68±0.07	75	19.3	act	1	Macklin (1956)	4	Au(1558)	3	I_0=9.2
						15.55	capt	2	Ryves(1971)	75	Au(1558)	1	I'_0=14.8±1.5
						11.7±1.9	act	1	V.D.Linden(1972)	7	Au,Co,In	5	E_c=0.55
71	39.8	14.12		5±1	1	14.52	act	1	Harris (1950)	18	Au(1337)	2	I_0=13.2
				4.71±0.23	75	21.6	act	1	Macklin (1956)	4	Au(1558)	3	I_0=15.
						31.22	capt	2	Ryves (1971)	75	Au(1558)	1	I'_0=29.1±2.9
						13.03	act	1	V.D.Linden(1972)	7	Au,Co,In	5	E_c=0.55
32-Ge -nat	-	-	-	2.20	2	3.5±2.9	abs	5	Klimentov(1957)	5	Li(32.2)		
70	20.55	20 ms	m	0.28±0.7	1								
		11.4 d	g	3.4±0.3	1								
72	27.37	0.53 s	m (IT=100)										
			g+m	1.0	2	0.59	calc	12	Palmuci(1967)	76	-	1	I'_0=0.14
73	7.67	-		14	2								
74	36.76	48 s	m (IT=100)	0.20±0.02	1								
		82 m	g	0.3	2								
			g+m	0.45±0.20	1	0.81	act	1	Ricabarra(1970)	77	Au(1551)	1	I'_0=0.61
						0.73	act	1	V.D.Linden(1972)	7	Au,Co,In	5	E_c=0.55

Table 1 (cont.)

Target nuclide		A+1 nuclide		Thermal cross-section, σ_0		Resonance integral, I_0							
Z-Symbol-A	Abundance, % or T	T	Isomeric state and IT, %	Value, barns	Ref.	Value, barns	Type	Method	Author (year)	Ref.	Standard	Notes	Remarks
76	7.67	54 s	m	0.11	77	0.645	calc	12	Walker(1969)	78	-	1	I'_o=0.6
	*>2 10^{16}y		(IT=24)	0.10	78	1.019	act	1	Ricabarra(1970)	77	Au(1551)	1	I'_o=0.969
		11.5 h	g	0.056	77	0.427	calc	12	Walker(1969)	78	-	1	I'_o=0.4
				0.06	78	0.887	act		Ricabarra(1970)	77	Au(1551)	1	I'_o=0.862
			g+0.24m	0.08	78	0.556	calc	12	Walker(1969)	78	-	1	I'_o=0.52
						1.8±0.1	act	1	V.D.Linden(1972)	7	Au,Co,In	5	E_c=0.55
			g+m	0.166	77	1.906	act	1	Ricabarra(1970)	77	Au(1551)	1	I'_o=1.83
33-As -75	100	26.4 h		4.48±0.11	75	34.64	act	1	Harris (1950)	18	Au(1337)	2	I_o=31.5
				4.5	2	61.1	abs	4	Macklin(1956)	4	Au(1558)	3	I_o=33
						40.3	act	1	Macklin(1956)	4	Au(1558)	3	I_o=36.8
						38.5	calc	12	**Bresesti(1964)**	46	-	6	
						81	abs	4	Rogers (1967)	79	Au(1558)		E_c=0.5
						57	calc	12	Rogers (1967)	79	-		E_c=0.5
						68.4± 15	act	1	Borchardt(1967)	15	Au(1551)		I'_o=66
						50.72	calc	12	Palmuci(1967)	76	-		I'_o=48.7
						61	capt	2	Ryves (1971)	75	Au(1558)	1	I'_o=59±6
						41± 1	act	1	V.D.Linden(1972)	7	Au,Co,In	5	E_c=0.55
34-Se -nat	-	-	-	12.2±0.56	1	9.6± 1.2	abs	5	Klimentov(1957)	5	Li(32.2)		
74	0.87	120.4 d		30	2	589± 12	capt	1	Sims (1967)	73	Co(69.9)		I'_o=568±12
				66.8±1.4	73	479	act	1	Ricabarra(1968)	80	Au(1551)	1	I'_o=456
				50±7	80	552	calc	12	Ricabarra(1968)	80	-	1	I'_o=530
						475± 19	act	1	V.D.Linden(1972)	7	Au,Co,In	5	E_c=0.55

Table 1 (cont.)

Target nuclide		A+1 nuclide		Thermal cross-section, σ_0		Resonance integral, I_0							
Z-Symbol-A	Abundance, % or T	T	Isomeric state and IT, %	Value, barns	Ref.	Value, barns	Type	Method	Author (year)	Ref.	Standard	Notes	Remarks
76	9.02	17.4 s	m (IT=100)	22±1	1								
		-	g	63	2								
77	7.58	-		42±4	78	34.7	calc	12	Palmuci(1967)	76	-	1	I'_0=15.8
						33	calc	12	Walker (1969)	78	-	1	I'_0=14
78	23.52	3.91 m	m	0.36±0.04	107	4.65	act	1	Kramer(1965)	107	Au	1	I'_0=4.49
				0.40±0.04	78	4.77	act		Ricabarra(1968)	80	Au(1551)	1	I'_0=4.58±0.6
			(IT=100)	0.251±0.025	78								
				0.38±0.04	1								
		6.5 10^4y	g	0.05	2								
			g+m	0.4	78	5.46	calc	12	Palmuci(1967)	76	-	1	I'_c=5.20
						5.96	calc	12	Ricabarra(1968)	80	-	1	I'_0=5.78
						6.18	calc	12	Walker (1969)	78	-	1	I'_0=6±2
80	49.82	56.8 m	m (IT=100)	0.08±0.01	1	0.50±0.02	act	1	V.D. Linden(1972)	7	Au,Co,In	5	E_c=0.55
		18.6 m	g	0.530±0.040	1								
			g+m	0.61±0.05	80	0.61	calc	12	Palmuci(1967)	76	-	1	I'_0=0.348
				0.58	78	1.70	act	1	Ricabarra(1968)	80	Au(1551)	1	I'_0=1.43±0.16
						1.84	calc	12	Ricabarra(1968)	80	-	1	I'_0=1.58
						0.76	calc	12	Walker(1969)	78	-	1	I'_0=0.5
82	9.19 *>10^{17}y	70 s	m (IT=0)	0.05	2								
		25 m	g	0.004	2								
			g+m	0.045	78	0.11	calc	12	Walker(1969)	78	-	1	I'_0=0.09

Table 1 (cont.)

Target nuclide		A+1 nuclide		Thermal cross-section, σ_0		Resonance integral, I_0							
Z-Symbol-A	Abundance, % or T	T	Isomeric state and IT, %	Value, barns	Ref.	Value, barns	Type	Method	Author (year)	Ref.	Standard	Notes	Remarks
35-Br -nat	-	-	-	6.8±0.1	1	118±14	abs	5	Klimentov(1957)	5	Li(32.2)		
79	50.52	4.38 h	m (IT=100)	2.7±0.2	1	35.7	capt	2	Ryves(1970)	16	Au(1558)	1	I'_o=34.5±4
		17.6 m	g	8.2±0.4	1	96	cap+	2	Ryves(1970)	16	Au(1558)	1	I'_o=92±10
				8.7±0.3	16								
			g+m	10.8±0.5	1	146	act	1	Harris(1950)	18	Au(1337)	2	I_o=133
						153	abs	4	Macklin(1956)	4	Au(1558)	3	I_o=147
						148±4	act	1	V.D. Linden(1972)	7	Au,Co,In	5	E_c=0.55
81	49.43	6.05 m	m (IT=98)	3.0	82	34	act	1	Emery(1965)	82	Au(1558)		
		35.34 h	g	0.26	82	7	act	1	Emery(1965)	82	Au(1558)		
			g+0.98m	3.23±0.20	82	41.3±1	act	1	Emery(1965)	82	Au(1558)		
				3.1±0.4	80	68.4	act	1	Ricabarra(1968)	80	Au(1551)	1	I'_o=67±10
						51.5	capt	2	Ryves(1970)	16	Au(1558)	1	I'_o=50±5
						48±1	act	1	V.D. Linden(1972)	7	Au,Co,In	5	E_c=0.55
			g+m	3.26	82	43.5	act	1	Emery(1965)	89	Au(1558)		
						42.2	calc	12	Palmuci(1967)	76	-	1	I'_o=40.7
						64.5	calc	12	Ricabarra(1968)	80	-	1	I'_o=63
						51.5	cal	12	Walker(1969)	78	-	1	I'_o=50

Table 1 (cont.)

Target nuclide		A-1 nuclide		Thermal cross-section, σ_0		Resonance integral, I_0							
Z-Symbol-A	Abundance, % or T	T	Isomeric state and IT, %	Value, barns	Ref.	Value, barns	Type	Method	Author (year)	Ref.	Standard	Notes	Remarks
36-Kr -nat	-	-	-	24.±1.0	1								
78	0.354	55 s	m										
		34.92 h	g	2.	2								
80	2.27	13 s	m (IT=100)										
		2.1 10^5y	g										
			g+m	14±2	1	56.1±2	abs	6	Bradley(1972)	83		8	
82	11.56	1.83 h	m (IT=100)	3±1	1								
		-	g	42	2								
			g+m	25	78	188	calc	12	Palmuci(1967)	76	-	1	I'_o=176.5
						201	calc	12	Walker(1969)	78	-	1	I'_o=190
83	11.55	-	-	180	1	230	calc	12	Palmuci(1967)	76	-	1	I'_o=139.6
				200	78	240	calc	12	Walker(1969)	78	-	1	I'_o=150
84	56.90	4.4 h	m	0.10	2	6.03	calc	12	Walker(1969)	78	-	1	I'_o=6
			(IT=23)	0.07	78								
		10.76 y	g	0.042±0.004	1	2.02	calc	12	Walker(1969)	78	-	1	I'_o=2
			g+m	0.112		3.18	calc	12	Palmuci(1967)	76	-	1	I'_o=3.12
						8.46	calc	12	Walker(1969)	78	-	1	I'_o=8.4
86	17.37	76 m		0.06	2	0.45	calc	12	Walker(1969)	78	-	1	I'_o=0
				1	78								
85	*10.76y	-		< 15	2								
				8	78								

Table 1 (cont.)

Target nuclide		A+1 nuclide		Thermal cross-section, σ_0		Resonance integral, I_0							
Z-Symbol-A	Abundance, % or T	T	Isomeric state and IT, %	Value, barns	Ref.	Value, barns	Type	Method	Author (year)	Ref.	Standard	Notes	Remarks
37-Rb -nat	-	-	-	0.70	118	9.±2.8	abs	5	Klimentov(1957)	5	Li(32.2)		
85	72.15	1.02 m	m (IT=100)	0.061±0.003	1	1.16±0.03	act	1	V.D. Linden(1972)	7	Au,Co,In	5	E_c=0.55
		18.66 d	g	0.45±0.04	1								
			g+m	0.42	78	24.7±1.7	capt	1	Sims(1967)	73	Co(69.9)		I'_0=24.7±1.7
				0.396±0.05	73	3.35	calc	12	Palmuci(1967)	76	-		I'_c=3.16
						7.54	act	1	Ricabarra(1969)	74	Au(1551)	1	I'_0=7.34±0.68
						2.76	calc	12	Walker(1969)	78	-	1	I'_0=2.57
						8.0±0.9	act	1	Steinnes(1972)	17	Au(1550)		E_c=0.5
						3.65±0.20	act	1	V.D. Linden(1972)	7	Au,Co,In	5	E_c=0.55
						6.25	act	1	Alian (1973)	125	Co(75)		E_c= 0.55
87	27.85	17.8 m		0.12	2	2.69	calc	12	Palmuci(1967)	76	-	1	I'_0=2.64
				0.12	78	2.39	calc	12	Walker(1969)	78	-	1	I'_0=2.34
						1.9±0.1	act	1	V.D. Linden(1972)	7	Au,Co,In	5	E_c=0.55
38-Sr -nat	-	-	-	1.53	86	17.1	abs	1	Macklin(1956)	4	Au(1558)	3	
						10±2.6	abs	5	Klimentov(1957)	5	Li(32.2)		
						14±3			Prokhorov(1964)	70		6	
84	0.56	70 m	m (IT=86)	0.65±0.07	1	4.59±0.15	act	1	V.D. Linden(1972)	7	Au,Co,In	5	E_c=0.55
		64 d	g	0.4±0.1	1	6.92	act	1	Ricabarra(1970)	77	Au(1551)	1	I'_0=6.7±1.3
				0.49±0.1	77								
			g+0.86m	0.80	17	10.6±1.1	act	1	Steinnes(1972)	17	Au(1550)		E_c=0.5
						23±2.9	act	1	V.D.Linden(1972)	7	Au,Co,In	5	E_c=0.55

Table 1 (cont.)

Target nuclide		A+1 nuclide		Thermal cross-section, σ_0		Resonance integral, I_0							
Z-Symbol-A	Abundance, % or T	T	Isomeric state and IT, %	Value, barns	Ref.	Value, barns	Type	Method	Author (year)	Ref.	Standard	Notes	Remarks
86	9.86	2.8 h	m (IT=99)	0.8±0.1	1	4.79±0.24	act	1	V.D. Linden(1972)	7	Au,Co,In	5	E_c=0.55
		-	g										
			g+m	1.0	78	3.45	calc	12	Walker(1969)	78	-	1	I'_0=3
87	7.02	-		40	78	114.5	calc	12	Palmuci(1967)	76	-	1	I'_0=96.5
						118	calc	12	Walker(1969)	78	-	1	I'_0=100
88	82.56	52.7 d		0.0045±0.0011	78	0.063	calc	12	Walker(1969)	78	-	1	I'_0=0.06
				0.0058±0.0006	78								
89	*52.7d	27.7 y		0.42±0.04	78								
90	*27.7y	9.67 h		0.8±0.5	78								
39-Y -89	100	3.1 h	m (IT=99.6)	0.001	2	0.88±0.08	act	1	V.D. Linden(1972)	7	Au,Co,In	5	E_c=0.55
		64.0 h	g	1.3	2								
			g+m	1.28±0.01	1	0.792	act	1	Harris(1950)	18	Au(1337)	2	I_0=0.72
				1.21±0.05	75	0.84	act	1	Macklin(1956)	4	Au(1558)	3	I_0=0.91
						0.676	calc	12	Palmuci(1967)	76	-	1	I'_0=0.10
						0.696	calc	12	Walker(1969)	78	-	1	I'_0=0.12
						1.01	capt	2	Ryves(1971)	75	Au(1558)	1	I'_0=0.44±0.06
90	*64.0h	58.8 d		4	78								
91	*58.8d	3.53 h		1.4±0.3	78								

Table 1 (cont.)

Target nuclide		A+1 nuclide		Thermal cross-section, σ_0		Resonance integral, I_0							
Z-Symbol-A	Abundance, % or T	T	Isomeric state and IT, %	Value, barns	Ref.	Value, barns	Type	Method	Author (year)	Ref.	Standard	Notes	Remarks
40-Zr -nat	-	-	-	0.188±0.008	1	2.9	abs	4	Macklin(1956)	4	Au(1558)	3	I_o=3.
						3.7±0.5	abs	5	Klimentov(1957)	5	Li(32.2)		
						0.65	abs	4	Rose(1958)	23	Au(1510)	3	I'_o=0.6±0.06
						1.18	abs	4	Carre(1967)	49	Au(1540)	1	I'_o=1.10±0.15
						1.18	calc	12	Carre(1967)	49	-	1	I'_o=1.1±0.1
90	51.46	-		0.10	78	0.19±0.03			Kapchig.(1965)	103		11	
						0.165	calc	12	Palmuci(1967)	76	-	1	I'_o=0.12
						0.201	calc	12	Walker(1967)	78	-	1	I'_o=0.156
91	11.23	-		1.6	78	5±1.5	abs	4	Skolnik(1959)	84		3	
						8.79	abs	5	Skolnik(1959)	84		3	
						5.0±1.5	abs	4	Feiner(1959)	92		11	
						7.3±0.8			Kapchig.(1965)	103		11	
						6.22	calc	12	Palmuci(1967)	76	-	1	I'_o=5.5
						8.42	calc	12	Walker(1969)	78	-	1	I'_o=7.5
92	17.11	1.5 10^6y		0.26	78	0.557	calc	12	Palmuci(1967)	76	-	1	I'_o=0.44
						0.657	calc	12	Walker(1969)	78	-	1	I'_o=0.54
94	17.40	65.5 d		0.075±0.008	1	0.234	calc	12	Palmuci(1967)	76	-	1	I'_o=0.20
				0.07	78	0.294	calc	12	Walker(1969)	78	-	1	I'_o=0.26
						0.404	act	1	Ricabarra(1970)	77	Au(1551)	1	I'_o=0.37±0.04
						0.334	abs		Fulmer(1971)	85		8	I_o=0.30±0.03
						0.38±0.02	act	1	V.D. Linden(1972)	7	Au,Co,In	5	E_c=0.55

Table 1 (cont.)

Target nuclide		A+1 nuclide		Thermal cross-section, σ_0		Resonance integral, I_0							
Z-Symbol-A	Abundance, % or T	T	Isomeric state and IT, %	Value, barns	Ref.	Value, barns	Type	Method	Author (year)	Ref.	Standard	Notes	Remarks
96	2.80	17.0 h		0.2	78	7.92	calc	12	Palmuci(1967)	76	-	1	I'_o=7.92
	*3.6 10^{17}y			0.0057	16	5.63	calc	12	Walker(1969)	78	-	1	I'_o=5.63
						5.06	act	1	Ricabarra(1970)	77	Au(1551)	1	I'_o=4.97
						5.0±0.4	abs		Fulmer(1971)	85		8	
93	*1.5 10^6y	-		2.	78	22.8	calc	12	Palmuci(1967)	76	-	1	I'_o=21.9
						22.9	calc	12	Walker(1969)	78	-	1	I'_o=22
41-Nb -93	100	6.29 m	m	1	2	6.70	capt	2	Ryves(1971)	75	Au(1558)	1	I'_o=6.2±1.4
				1.1±0.15	75	8.4±2.6	act	1	V.D. Linden(1972)	7	Au,Co,In	5	E_c=0.55
			(IT=100)										
		2.0 10^4y	g	0.1	2								
			g+m	1.15±0.05	1	4.61	act	1	Harris(1950)	18	Au(1337)	2	I_o=4.19
				1.1±0.1	88	8.5	abs	4	Macklin(1956)	4	Au(1558)	3	I_o=8.3
						4.0	act	1	Macklin(1956)	4	Au(1558)	3	I_o=3.87
						5.7	abs	4	Rose(1958)	23	Au(1510)	3	I_o=5.4±0.4
						12.7	abs	4	**Tattersall(1960)**	22	Au(1513)	3	I_o=13.0±5.0
						8.4			**Schuman(1961)**	87			
						8.73	abs	4	Hellstrand(1962)	89	Au(1500)	3	I_o=8.15±0.65
						10±2			Prokorov(1964)	70			
						9.2±0.6	capt		Druschel(1968)	88			
94	*2 10^4y	35.0 d		16.8±1.5	88	500±200			**Schuman(1961)**	87			
				15±4	87	122±10	capt		Druschel(1968)	88			
95	*35.0d	**23.35 h**		4	78								

Table 1 (cont.)

Target nuclide		A+1 nuclide		Thermal cross-section, σ_0		Resonance integral, I_0							
Z-Symbol-A	Abundance, % or T	T	Isomeric state and IT, %	Value, barns	Ref.	Value, barns	Type	Method	Author (year)	Ref.	Standard	Notes	Remarks
42-Mo -nat	-	-	-	2.70±0.08	1	13.4	abs	4	Macklin(1956)	4	Au(1558)	3	I_o=13
						13.8±1.7	abs	5	Klimentov(1957)	5	Li(32.2)		
						14.9	abs	4	Rose (1958)	23	Au(1510)	3	I_o=14±2
						19.5	abs	4	Tattersall(1960)	22	Au(1513)	3	I_o=19±2.5
						26.17	abs	11	Kapchig.(1963)	71		3	I_o=25±1
						14.32	abs		Prokhorov(1964)	70		1	I'_o=13.1±1
						24.4	abs	4	Carre(1967)	49	Au(1540)	1	I'_o=23.2±1
						24.2	calc	12	Carre(1967)	49	-	1	I'_o=23
						27±12	calc	12	Shwe (1969)	90	-		
92	15.86	6.59 h	m	<0.006	2								
	*>4 10^{18}y		(IT=100)										
		>100 y	g	<0.3	2								
94	9.72	-											
95	15.70	-		14.5±0.5	1	101	abs	4	Tattersall(1960)	22	Au(1513)	3	I_o=100.0±20.0
				14.5	78	108.1	calc	12	Palmuci(1967)	76	-	1	I'_o=101.6
						107.5	calc	12	Walker (1969)	78	-	1	I'_o=101
96	16.50	-		1.2	78	27.94	calc	12	Palmuci(1967)	76	-	1	I'_o=27.4
						25.94	calc	12	Walker (1969)	78	-	1	I'_o=25.4
97	9.45	-		2.2	78	13.7	calc	12	Palmuci(1967)	76	-	1	I'_o=12.7
						16.0	calc	12	Walker (1969)	78	-	1	I'_o=15

Table 1 (cont.)

Target nuclide		A+1 nuclide		Thermal cross-section, σ_0		Resonance integral, I_0							
Z-Symbol-A	Abundance, % or T	T	Isomeric state and IT, %	Value, barns	Ref.	Value, barns	Type	Method	Author (year)	Ref.	Standard	Notes	Remarks
98	23.75	66.7 h		0.15±0.2	1	6.69±0.13	act	4	Cabell(1961)	91	Au(1558)	4	
				0.137±0.006	73	9.1	act	1	Dahlberg(1961)	12	Au(1490)	3	I_o=10.7±2.5
				0.14	78	8.9	act	1	Baumann(1963)	14	Au(1490)	3	I_o=9.9±1.1
						6.37	abs	11	Kapchig.(1963)	71		3	I_o=6.3
						8.77	calc	12	Palmuci(1967)	76	-	1	I'_o=8.7
						6.79±0.42	capt	1	Sims(1967)	73	Co(69.9)		I'_o=6.77±0.42
						6.37			De Lange (1968)	93		1,9	I'_o=6.3±0.8
						6.46	act	2	Köhler(1969)	94	Au(1549)		I'_o=6.38±0.15
						8.03	calc	12	Walker(1969)	78	-	1	I'_o=7.97
						4.72	act	1	De Corte(1971)	29	Au,Co,In	5	
						1.3±0.1	act	1	V.D. Linden(1972)	7	Au,Co,In	5	E_c=0.55
						7.1	act	1	Steinnes(1972)	17	Au(1550)		E_c=0.5
100	9.62 *)3 10^{17}y	14.6 m		0.20	78	3.73±0.2	act	2	Cabell(1961)	95	Au(1558)	4	
						1.19	abs	11	Kapchig.(1963)	71		3	I_o=1.1±0.2
						4.15	act	1	Baumann(1963)	14	Au(1490)	3	I_o=4.06±0.23
						8.01	calc	12	Palmuci(1967)	76	-	1	I'_o=7.92
						8.39	calc	12	Walker(1969)	78	-	1	I'_o=8.3
						3.91	act	1	Ricabarra(1969)	74	Au (1551)	1	I'_o=3.82±0.15
						8.13	calc	12	Ricabarra(1969)	74	-	1	I'_o=8.04
						4.2±0.2	act	1	V.D. Linden(1972)	7	Au,Co,In	5	E_c=0.55

Table 1 (cont.)

Target nuclide		A-1 nuclide		Thermal cross-section, σ_0		Resonance integral, I_0							
Z-Symbol-A	Abundance, % or T	T	Isomeric state and IT, %	Value, barns	Ref.	Value, barns	Type	Method	Author (year)	Ref.	Standard	Notes	Remarks
43-Tc 98	*1.5 10^6y	6.049h	m (IT=100)	3	2								
		2.12 10^5y	g										
99	*2.12 10^5y	15.8 s		22±3	1	92	abs	4	**Tattersall(1960)**	22	Au(1513)	3	I'_0=60±20
				22	78	187.2	calc	12	Palmuci(1967)	76	-	1	I'_0=177.2
						206	calc	12	Walker(1969)	78	-	1	I'_0=196
44-Ru -nat	-	-	-	2.56±0.13	1	82±3	abs	4	**Rogers(1967)**	79	Au(1558)		E_c=0.5
						59	calc	12	**Rogers(1967)**	79	-		E_c=0.5
96	5.46	2.88 d		0.2	2	5.51±0.4	act	1	Halperin(1965)	96	Mn(13.1)	4	
						6.76	act	1	Ricabarra(1970)	77	Au(1551)	1	I_0=6.67±0.11
						4.8±0.2	act	1	**V.D.Linden(1972)**	7	Au,Co,In	5	E_c=0.55
98	1.868	-		< 8	1								
99	12.63	-		10.6±0.6	1	195±20	abs	6	Halperin(1965)	96	Co(75)	4	
100	12.53	-		10.4±0.7	1	11.3	abs	6	Halperin(1965)	96	Co(75)	3	I_0=11.2±2.6
				5.8	78	2.61	calc	12	Walker(1969)	78	-	1	I'_0=0
101	17.02	-		3.1±0.9	1								
				5.2	78	79.2	abs	6	Halperin(1965)	96	Co(75)	3	I_0=79.1±8
									Walker(1969)	78	-	1	I'_0=75

Table 1 (cont.)

Target nuclide		A+1 nuclide		Thermal cross-section, σ_0		Resonance integral, I_0							
Z-Symbol-A	Abundance, % or T	T	Isomeric state and IT, %	Value, barns	Ref.	Value, barns	Type	Method	Author (year)	Ref.	Standard	Notes	Remarks
102	31.6	39.5 d		1.4	2	4.14	act	1	Lantz(1965)	116	Co(75)	11	
				1.3	78	4.16	act	1	Halperin(1965)	96	Co(75)	3	I_o=4.14±0.41
						9.38	calc	12	Walker(1969)	78	-	1	I'_o=8.8
						5.45	act	1	Ricabarra(1969)	74	Au(1551)	1	I'_o=4.80±0.52
						4.3±0.4	act	1	V.D. Linden(1972)	7	Au,Co,In	5	
104	18.87	4.44 h		0.47	1	4.6±4	act	1	Lantz(1964)	97	Co(75)	4	
						0.212	calc	12	Walker(1969)	78	-	1	I'_o=0
						4.57	act	1	Ricabarra(1970)	77	Au(1551)	1	I'_o=4.36
						6.5±0.3	act	1	V.D. Linden(1972)	7	Au,Co,In	5	E_c=0.55
105	*4.44h	368 d		0.2±0.02	1								
				0.3	78								
106	*368d	4.2 m		0.146±0.045	98	0.6±0.6	act	1	Halperin(1964)	110	Co(75)	4	
				0.15	78	2.0±0.6	act	1	Werner(1965)	98	Co(72.7)	4	
45-Rh 103	100	4.41 m	m	11±1	1	86	act	1	Walker(1966)	99	In(3300)	1	I'_o=81±8
						89	act	2	Köhler(1969)	94	Au(1549)		I'_o=78±7
			(IT=99)			610±24	act	1	V.D. Linden(1972)	7	Au,Co,In	5	E_c=0.55
		43 s	g	139±7	1	1155	act	1	Walker(1966)	99	In(3300)	1	I'_o=1094±6
				135±3	94	1111	act	2	Köhler(1969)	94	Au(1549)		I'_o=1054±74
			g+m	150±5	1	648	act	1	Harris(1950)	18	Au(1337)	2	I_o=589
				150	78	592	abs	4	Macklin(1956)	4	Au(1558)	3	I'_o=575
				146	99	675	act	1	Macklin(1956)	4	Au(1558)	3	I_o=656

Table 1 (cont.)

Target nuclide		A+1 nuclide		Thermal cross-section, σ_0		Resonance integral, I_0							
Z-Symbol-A	Abundance, % or T	T	Isomeric state and IT, %	Value, barns	Ref.	Value, barns	Type	Method	Author (year)	Ref.	Standard	Notes	Remarks
						1241	act	1	Walker(1966)	99	In(3300)	1	I'_0=1175±60
						1096	calc	12	Palmuci(1967)	76	-	1	I'_0=1030
						1200±100	abs	4	Scoville(1968)	101	Au(1558)		E_c=0.5
						1100	calc	12	Scoville(1968)	101	-		E_c=0.5
						1069	calc	12	Walker(1969)	78	-	1	I'_0=1003
						645	abs	4	Hüttel(1971)	63	B(760.8)		
105	*35.88 h	130 s	m (IT=0)	5800±1200	1								
		30 s	g	13000±2000	1								
			g + m	18000	1	165000	act	1	Lantz(1964)	97	Co(75)	4	
				17000	78	167000	abs	6	Halperin(1966)	102		11	
46-Pd -nat	-	-	-	5.16	78	22.3	abs	4	Macklin(1956)	4	Au(1558)	3	I_0=23
						121	abs	4	Rogers(1967)	79	Au(1558)		E_c=0.5
						126	calc	12	Rogers(1967)	79	-		E_c=0.5
102	0.96	17.0 d		4.8	2								
104	10.97	-		1.0	78	11.25	calc	12	Palmuci(1967)	76	-		I'_0=10.8
						0.45	calc	12	Walker(1969)	78	-		I'_0=0
105	22.2	-		10	78	65.9	calc	12	Palmuci(1967)	76	-		I'_0=61.38
						89.5	calc	12	Walker(1969)	78	-		I'_0=85
106	27.3	21.3 s	m (IT=100)										
		$7\ 10^7$ y	g										

Table 1 (cont.)

Target nuclide		A+1 nuclide		Thermal cross-section, σ_0		Resonance integral, I_0							
Z-Symbol-A	Abundance, % or T	T	Isomeric state and IT, %	Value, barns	Ref.	Value, barns	Type	Method	Author (year)	Ref.	Standard	Notes	Remarks
			g+m	0.292±0.029	1	5.73±0.57	abs	6	Lantz(1964)	97	Co(75)	11	
				0.3	78	5.64	calc	12	Palmuci(1967)	76	-	1	I'_0=5.5
						5.64	calc	12	Walker (1969)	78	-	1	I'_0=5.5±1.3
108	26.7	4.69 m	m	0.26±0.04	1	2.26±0.04	act	1	V.D.Linden(1972)	7	Au,Co,In	5	E_c=0.55
			(IT=100)										
		13.47 h	g										
			g+m	12±2	1	237.1	calc	12	Palmuci(1967)	76	-	1	I'_0=232.6
				10	78	244.5	calc	12	Walker (1969)	78	-	1	I'_0=240
						173±9	act	1	V.D.Linden(1972)	7	Au,Co,In	5	E_c=0.55
110	11.8	5.5 h	m	0.037±0.006	1	0.40±0.01	act	1	V.D.Linden(1972)	7	Au,Co,In	5	E_c=0.55
			(IT=75)										
		22 m	g	0.20±0.06	1								
			g+0.75m	0.228	1	5.1±0.6	act	1	V.D.Linden(1972)	7	Au,Co,In	5	E_c=0.55
			g+m	0.237	1	6.14	calc	12	Walker(1969)	78	-	1	I'_0=6.0±0.6
				0.3	78								
47-Ag -nat	-	-	-	63.6±0.6	1	>650	abs	4	Macklin(1956)	4	Au(1558)	4	E_c=0.4
						466.±70	abs	5	Klimentov(1957)	5	Li(32.2)		
						835	abs	4	**Tattersall(1960)**	22	Au(1513)	3	I'_0=810
						789	abs	4	Markovik(1965)	100	Au(1540)	1	I'_0=760±20
						742±45	abs		Lesage (1966)	60	Au	8	
						698.6	abs	4	Carre (1967)	49	Au(1540)	1	I'_0=670±20
						758.6	calc	12	Carre (1967)	49	-	1	I'_0=730±50
						822.5	abs	4	Hüttel(1971)	63	B(760.8)		

Table 1 (cont.)

Target nuclide		A+1 nuclide		Thermal cross-section, σ_0		Resonance integral, I_0							
Z-Symbol-A	Abundance, % or T	T	Isomeric state and IT, %	Value, barns	Ref.	Value, barns	Type	Method	Author (year)	Ref.	Standard	Notes	Remarks
107	51.35	>5 y	m (IT=10)										
		2.42 m	g	35±5	1	108.	act	1	Harris(1950)	18	Au(1337)	2	I_o=98.3
				37.2±1.2	75	87.2	act	1	Macklin(1956)	4	Au(1558)	3	I_o=74
						93.7	capt	2	Ryves (1971)	75	Au(1558)	1	I'_o=77±5
						143±6	act	1	V.D.Linden(1972)	7	Au,Co,In	5	E_c=0.55
109	48.65	255 d	m	3.5±1	1	47.5±6.6	act	1	Lux (1964)	105	Au(1549)	4	
				3	78	57±16.4	act	1	Bresesti(1967)	106	Au(S_o=17.0)	1	S_o=18.74
			(IT=1.3)	4.72	75	81.1±2.2	capt	1	Sims (1968)	37	Co(69.9)		I'_o=77.7±2.1
				4.98	37	51.35	pref	13	Walker(1969)	78	-	1	I'_o=50
						49±1	act	1	V.D.Linden(1972)	7	Au,Co,In	5	E_c=0.55
		24.4 s	g	89±4	1	1112±68	act	1	V.D.Linden(1972)	7	Au,Co,In	5	E_c=0.55
			g+m	91±3	1	1334	act	1	Harris(1950)	18	Au(1337)	2	I_o=1213
				92	78	1240	act	1	Macklin(1956)	4	Au(1558)	3	I_o=1160
						1890	abs	4	**Tattersall(1960)**	22	Au(1513)	3	I'_o=1870±200
						1400±65	calc	12	Story (1961)	67	-	6	
						1442	calc	12	Palmuci(1967)	76	-	1	I'_o=1401
						1441	calc	12	Walker (1969)	78	-	1	I'_o=1400
110	*255d	7.5d		82±11	1	142	calc	12	Walker (1969)	78	-	1	I'_o=105±20
111	*7.5d	3.14h		3.2±2.0	78								

Table 1 (cont.)

Target nuclide		A+1 nuclide		Thermal cross-section, σ_0		Resonance integral, I_0							
Z-Symbol-A	Abundance, % or T	T	Isomeric state and IT, %	Value, barns	Ref.	Value, barns	Type	Method	Author (year)	Ref.	Standard	Notes	Remarks
48-Cd -nat	-	-	-	2450±30	1	102.2	pref	13	Drake(1966)	9	-	4	
106	1.22	6.49h		1.	2								
108	0.88	453d		2.0±1.0	1								
110	12.39	48.6m	m	0.1±0.03	1								
			(IT=100)	0.082	81								
			g+m	10	78	35.53	calc	12	Palmuci(1967)	76	-	1	I'_o=31.
						41.45	calc	12	Walker (1969)	78	-	1	I'_o=37
111	12.75	-		23	78	42.5	calc	12	Palmuci(1967)	76	-	1	I'_o=32.
						57.3	calc	12	Walker (1969)	78	-	1	I'_o=47
112	24.07	13.6y	m	0.03	2								
			(IT=0)										
		>1.3 10^{15}y	g										
			g+m	2	78	4.97	calc	12	Palmuci(1967)	76	-	1	I'_o=4.8
						17.9	calc	12	Walker (1969)	78	-	1	I'_o=17
113	12.26	-		20000	2								
	*1.3 10^{15}y			19940	78								
114	28.86	43d	m	0.036±0.007	81	3.02	pref	13	Walker(1969)	78	-	1	I'_o=3
			(IT=0)	0.04	78								
		53.5h	g	0.300±0.15	81	23.3±2.0	act	1	Pearlstein(1966)	81			E_c=0.
						20.14	pref	13	Walker(1969)	78	-	1	I'_o=20
			g+m	0.336	81	9.75	calc	12	Palmuci(1967)	76	-	1	I'_o=9.
						15.95	calc	12	Walker (1969)	78	-	1	I'_o=15

Table 1 (cont.)

Target nuclide		A+1 nuclide		Thermal cross-section, σ_0		Resonance integral, I_0							
Z-Symbol-A	Abundance, % or T	T	Isomeric state and IT, %	Value, barns	Ref.	Value, barns	Type	Method	Author (year)	Ref.	Standard	Notes	Remarks
116	7.58	3.4h	m	0.7	2								
	*>10^{17}y		(IT=0)										
		2.4h	g	1.4	2								
			g+m	2.1	2	0.36	calc	12	Walker(1969)	78	-	1	I'_o=0
				0.8	78								
49-In -nat	-	-	-	194±3	1	2220±300	abs	5	Klimentov(1957)	5	Li(32.2)		
						3790	abs	4	Rose (1958)	23	Au(1510)	3	I'_o=3500±250
						3740	abs	4	Tattersall(1960)	22	Au(1513)	3	I'_o=3600±350
						3287	abs	4	Carre (1967)	49	Au(1540)	1	I'_o=3280±70
						3137	calc	12	Carre (1967)	49	-	1	I'_o=3050±50
						3600	abs	4	Hüttel(1971)	63	B(760.8)		
113	4.23	50.0d	m	8.1±0.8	1	258±18	act	1	De Corte(1968)	109	Au,Co,In	5	
			(IT=96.5)	9.45±0.38	109	248	act	1	Ricabarra(1969)	74	Au(1551)	1	I'_o=243.1±29
						258±10	act	1	V.D.Linden(1972)	7	Au,Co,In	5	E_c=0.55
		72 s	g	3.9±0.4	1								
			g+m	12.0	1	1004	act	1	Harris(1950)	18	Au(1337)	2	I_o=913
						1050	act	1	Macklin(1956)	4	Au(1558)	4	E_c=0.4
115	95.77	2.16 s	m_2	70±39	1								
				81±8	1								
			(IT=100)	92±14	1								
		54 m	m_1										
			m_1+m_2	157±4	1	2630	act		Lamb (1939)	38			
				161±3	16	2640	act	1	Macklin(1956)	4	Au(1558)	4	E_c=0.4
				157±1	80	2340±200	calc	12	Myasisch.(1957)	111	-	6	

Table 1 (cont.)

Target nuclide		A+1 nuclide		Thermal cross-section, σ_0		Resonance integral, I_0							
Z-Symbol-A	Abundance, % or T	T	Isomeric state and IT, %	Value, barns	Ref.	Value, barns	Type	Method	Author (year)	Ref.	Standard	Notes	Remarks
						2603	calc	12	Klopp (1962)	112	-	6	-
			(IT=0)			2595	act		Brown (1962)	113		11	
						2550±80	act	1	Baumann(1963)	14	Au(1530)	6	E_c=0.622
						2500±85	act		Beckurts(1963)	114		6	E_c=1.30
						2667	act		Bresesti(1964)	46		1,6	I'_o=2595
						2782	capt	2	Ryves (1970)	16	Au(1558)	1	I'_o=2710±200
						2114±23	act	1	V.D.Linden(1972)	7	Au,Co,In	5	E_c=0.55
		13.4 s	g	42±4	1	650±30	act	1	Baumann(1963)	14	Au(1530)	6	E_c=0.622
						690±45	act		Beckurts(1963)	114		6	E_c=1.30
			g+m$_1$+m$_2$	199	1	2669	act	1	Harris(1950)	18	Au(1337)	2	I_o=2372
						3590	abs	4	Rose(1958)	23	Au(1510)	3	I'_o=3500±250
						3550	act	1	Walker(1960)	39	Au(1525)	3	I_o=3530±100
						3650±350	act	1	Feiner(1961)	44		6	
						3213	calc	12	Kelber(1962)	115		6	
						3440	act	1	Ben-David(1962)	13	Au(1607)	3	I_o=2886
						3128	calc	12	Connoly(1963)	72		6	I'_o=3038
						3200±100	act	1	Baumann(1963)	14	Au(1530)	6	E_c=0.622
						3190±120	act		Beckurts(1963)	114		6	E_c=1.30
						3480±120	act		Beckurts(1963)	114		6	E_c=0.55
						3200	calc	12	Beckurts(1963)	114	-	6	E_c=0.55
						3188	calc	12	Bresesti(1964)	46		6	
						3300±850	abs	5	Scoville(1965)	104		6	
						3277	calc	12	Palmuci(1967)	76	-	1	I'_o=3187
						3350±150	capt	1	Orvini(1968)	50	Au(1535)		E_c=0.55
						3067±210	act	2	Wall(1968)	62			E_c=0.5
						3280	calc	12	Walker(1969)	78	-	1	I'_o=3190

Table 1 (cont.)

Target nuclide		A+1 nuclide		Thermal cross-section, σ_0		Resonance integral, I_0							
Z-Symbol-A	Abundance, % or T	T	Isomeric state and IT, %	Value, barns	Ref.	Value, barns	Type	Method	Author (year)	Ref.	Standard	Notes	Remarks
50-Sn -nat	-	-	-	0.63±0.01	1	4.56	abs	4	Macklin(1956)	4	Au(1558)	3	I_o=4.3
						5.7	abs	5	Klimentov(1957)	5	Li(32.2)		
						3.74	abs	4	Rose (1958)	23	Au(1510)	3	I'_o=3.4±0.2
						8.7	abs	4	**Tattersall(1960)**	22	Au(1513)	3	I'_o=8.5±2
112	0.95	20 m	m (IT=91)	0.35±0.08	1								
		115 d	g	0.9±0.3	1								
			g+0.91m	1.22	1	42±2.1	act	1	V.D.Linden(1972)	7	Au,Co,In	5	E_c=0.55
114	0.65	-											
115	0.34	-											
116	14.24	14.0 d	m (IT=100)	0.006	2	0.4	act	1	De Corte(1971)	29	Au,Co,In	5	
						0.49	act	1	V.D.Linden(1972)	7	Au,Co,In	5	E_c=0.55
		-	g	0.249									
			g+m	0.25	78	13.2	calc	12	Palmuci(1967)	76	-	1	I'_o=13.1
						15.9	calc	12	Walker (1969)	78	-	1	I'_o=15
117	7.57	-		1.4	78	11.2	calc	12	Palmuci(1967)	76	-	1	I'_o=10.6
						12.6	calc	12	Walker (1969)	78	-	1	I'_o=12
118	24.01	250 d	m	0.01	2	0.205	calc	12	Walker (1969)	78	-	1	I'_o=0.2
			(IT=100)	0.02	78	0.4	act	1	De Corte(1971)	29	Au,Co,In	5	
			g	0.8	78	8.36	calc	12	Walker (1969)	78	-	1	I'_o=8
			g+m	0.82	78	4.27	calc	12	Palmuci(1967)	76	-	1	I'_o=3.9
						8.57	calc	12	Walker (1969)	78	-	1	I'_o=8.2

Table 1 (cont.)

Target nuclide		A+1 nuclide		Thermal cross-section, σ_0		Resonance integral, I_0							
Z-Symbol-A	Abundance, % or T	T	Isomeric state and IT, %	Value, barns	Ref.	Value, barns	Type	Method	Author (year)	Ref.	Standard	Notes	Remarks
119	8.58	-		1.2	78	4.46	calc	12	Palmuci(1967)	76	-	1	I'_0=3.92
						4.04	calc	12	Walker (1969)	78	-	1	I'_0=3.5
120	32.97	76 y	m	0.001	2								
			(IT=0)	0.0	78								
		25.5 h	g	0.14	2								
				0.20	78								
			g+m	0.141	2	0.81	calc	12	Palmuci(1967)	76	-	1	I'_0=0.71
				0.20	78	1.6	calc	12	Walker (1969)	78	-	1	I'_0=1.5
122	4.71	39 m	m	0.2	2	0.68	calc	12	Walker (1969)	78	-	1	I'_0=0.6
			(IT=0)	0.18	78	0.83±0.02	act	1	V.D.Linden(1972)	7	Au,Co,In	5	E_c=0.55
		125 d	g	0.001	2								
				0.001	78								
124	5.98	9.5 m	m	0.1	2	9.06	calc	12	Walker (1969)	78	-	1	I'_0=9
	*2 10^{17}y		(IT=0)	0.13	78	6.96	act	1	Ricabarra(1970)	77	Au(1551)	1	I'_0=6.9±1.0
						8.7±0.4	act	1	V.D.Linden(1972)	7	Au,Co,In	5	E_c0.55
		9.4 d	g	0.004	2								
				0.004	78								
51-Sb nat	-	-	-	8.15	86	115±12	abs	5	Spivak(1956)	53	B		
						106±13	abs	5	Klimentov(1957)	5	Li(32.2)		
121	57.25	4.2 m	m	0.06	2								
			(IT=100)										
		2.8 d	g	6.0	2								

Table 1 (cont.)

Target nuclide		A+1 nuclide		Thermal cross-section, σ_0		Resonance integral, I_0							
Z-Symbol-A	Abundance, % or T	T	Isomeric state and IT, %	Value, barns	Ref.	Value, barns	Type	Method	Author (year)	Ref.	Standard	Notes	Remarks
			g+m	6.06	2	162	act	1	Harris(1950)	18	Au(1337)	2	I_0=147
				6.1±0.25	50	143	act	1	Macklin(1956)	4	Au(1558)	3	I_0=162
				6.2	78	209	calc	12	Palmuci(1967)	76	-	1	I'_0=206
				6.21±0.10	16	200±17	capt	1	Orvini (1968)	50	Au(1535)		E_c=0.55
						203	calc	12	Walker (1969)	78	-	1	I'_0=200
						209	capt	2	Ryves (1970)	16	Au(1558)	1	I'_0=206±15
						181	act	1	Ricabarra(1970)	77	Au(1551)	1	I'_0=178±26
						127±5	act	1	V.D.Linden(1972)	7	Au,Co,In	5	E_c=0.55
						169±9	act	1	Steinnes(1972)	17	Au(1550)		E_c=0.5
123	42.75	21 m	m_1 (IT=100)	0.015	2								
		93 s	m_2 (IT=80)	0.03	2								
		60.4 d	g	3.3	2								
			g+0.8(m_1+m_2)	3.336	2	138	act	1	Harris(1950)	18	Au(1337)	2	I_0=125
				4.14±0.12	16	183	act	1	Macklin(1956)	4	Au(1558)	3	I_0=138
				4.44±0.09	37	142.6±4.0	capt	1	Sims (1968)	37	Co(69.9)		I'_0=139.3±3.9
				4.03±0.16	50	116±10	capt	1	Orvini(1968)	50	Au(1535)		E_c=0.55
						115	act	1	Ricabarra(1970)	77	Au(1551)	1	I'_0=113±9
						122	capt	2	Ryves (1970)	16	Au(1558)	1	I'_0=120±12
						234±11	act	1	V.D.Linden(1972)	7	Au,Co,In	5	E_c=0.55
						136.0	act	1	Alian (1973)	125	Co(75)		E_c=0.55
			g+m_1+m_2	4.2	78	111.6	calc	12	Palmuci(1967)	76	-	1	I'_0=108.7
						123.9	calc	12	Walker (1969)	78	-	1	I'_0=122
124	*60.4 d	2.71 y		6.5	78								

Table 1 (cont.)

Target nuclide		A+1 nuclide		Thermal cross-section, σ_0		Resonance integral, I_0							
Z-Symbol-A	Abundance, % or T	T	Isomeric state and IT, %	Value, barns	Ref.	Value, barns	Type	Method	Author (year)	Ref.	Standard	Notes	Remarks
52-Te -nat	-	-	-	4.7±0.1	1	37.0	abs	4	Macklin(1956)	4	Au(1558)	3	I_o=36
						50.0±6.0	abs	5	Klimentov(1957)	5	Li(32.2)		
						74.1	abs	4	**Tattersall(1960)**	22	Au(1513)	3	I'_o=72
120	0.089	154 d	m (IT=90)	0.340±0.060	1								
		17 d	g	2.0±0.3	1								
			g+m	2.34	1								
122	2.46	117 d	m (IT=100)	1.0	2								
		$1.2\ 10^{13}$y	g	2.0	2								
			g+m	3.0	2	55.2	calc	12	Palmuci(1967)	76	-	1	I'_o=53.9
				2.8	78	67.3	calc	12	Walker (1969)	78	-	1	I'_o=66
123	0.87												
	*$1.2\ 10^{13}$y			400	2	5634	calc	12	Palmuci(1967)	76	-	1	I'_o=5454
				410	78	5606	calc	12	Walker (1969)	78	-	1	I'_o=5426
124	4.61	58 d	m (IT=100)	0.040±0.025	78								
		-	g	6.46	78								
			g+m	6.5	78	5.0	calc	12	Palmuci(1967)	76	-	1	I'_o=2.12
						2.9	calc	12	Walker (1969)	78	-	1	I'_o=0
125	6.99	-		1.5	78	11.9	calc	12	Palmuci(1967)	76	-	1	I'_o=11.2
						18.7	calc	12	Walker (1969)	78	-	1	I'_o=18

Table 1 (cont.)

Target nuclide		A+1 nuclide		Thermal cross-section, σ_0		Resonance integral, I_0							
Z-Symbol-A	Abundance, % or T	T	Isomeric state and IT, %	Value, barns	Ref.	Value, barns	Type	Method	Author (year)	Ref.	Standard	Notes	Remarks
126	18.71	109 d	m	0.135±0.023	1	1.05	calc	12	Walker (1969)	78	-	1	I'_o=1
			(IT=99.2)	0.1	78								
		9.4 h	g	0.9±0.15	1	9.04	calc	12	Walker (1969)	78	-	1	I'_o=9
				0.9	78								
			g+m	1.035	1	9.06	calc	12	Palmuci(1967)	76	-	1	I'_o=8.56
				1.0	78	10.5	calc	12	Walker (1969)	78	-	1	I'_o=10
128	31.79	34.1 d	m	0.014±0.004	1	0.0774±0.005	capt	2	Maxia (1969)	108	Au(1543)		
			(IT=64)	0.016±0.001	108	0.086	calc	12	Walker (1969)	78	-	1	I'_o=0.0[illegible]
		68.7 m	g	0.155±0.040	1	1.48±0.13	capt	2	Maxia (1969)	108	Au(1543)		
				0.200±0.008	108	1.57	calc	12	Walker (1969)	78	-	1	I'_o=1.5
			g+m	0.169	1	9.56	calc	12	Palmuci(1967)	76	-	1	I'_o=9.46
				0.216	108	1.68	calc	12	Walker (1969)	78	-	1	I'_o=1.58
130	34.49 *8 10^{20}y	30 h	m	0.04±0.01	1	0.049	calc	12	Walker (1969)	78	-	1	I'_o=0.04
			(IT=18)	0.02	78								
		24.8 m	g	0.220±0.070	1	0.45	calc	12	Walker (1969)	78	-	1	I'_o=0.36
				0.20	78								
			g+m	0.24	1	0.50	calc	12	Walker (1969)	78	-	1	I'_o=0.40
				0.22	78	0.57	act	2	Ricabarra(1970)	77	Au(1551)	1	I'_o=0.48±0.14

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