^{151}Eu(p,2nγ) 1971Ke06

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	S. K. Basu, A. A. Sonzogni	NDS 114, 435 (2013)	1-Apr-2013

Intensities and energies of electrons and γ rays following the reaction ^{151}Eu(p,2nγ) were measured at various proton energies. Multipolarities of transitions in ^{150}Gd were determined on the basis of measured internal conversion coefficients. Measurements of angular distributions of prominent γ rays were made and conversion electron-γ ray coincidences were studied to establish the decay scheme.

^{150}Gd Levels

E(level)	Jπ‡	Comments
0.0	0^+	
638.19 *18*	2^+	
1134.6 *3*	3^-	
1288.5 *3*	4^+	
1430.22 *24*	$(2)^+$	
1518.5 *4*	2^+	
1700.8 *3*	5^-	
1814.3† *5*	3^-	E(level),Jπ: from adopted data set.
1947.4 *4*	$2^-,3^-,4^-$	
1988.0† *5*	$2^+,3^+,4^+$	Jπ: from adopted values.
2117?† *7*	6^+	
2211.3† *6*	7^-	E(level),Jπ: from adopted data set.
2985.2† *7*		E(level): from adopted data set.

† This level was introduced by the evaluators as a result of placing γ-rays unplaced by the authors. Placements were made on the basis of data from other reactions.
‡ From Adopted Levels.

γ(^{150}Gd)

α(K)exp: Weighted means of measurements at E(p)=12.5,13.4 MeV were obtained relative to the theoretical value for the 638-keV 2^+ to 0^+ transition.

Eγ	Iγ†	Ei(level)	J_i^π	Ef	J_f^π	Mult.#	δ	Comments
412.2 *2*	13.5 *8*	1700.8	5^-	1288.5	4^+	E1		α(K)exp=0.0088 *5*
496.5 *2*	29.9 *3*	1134.6	3^-	638.19	2^+	E1		α(K)exp=0.00455 *25*
510.5@‡ *5*		2211.3	7^-	1700.8	5^-			
566.4 *2*	17.4 *4*	1700.8	5^-	1134.6	3^-	E2		
638.2 *2*	90.2 *4*	638.19	2^+	0.0	0^+	E2		α(K)exp=0.00625
650.2 *2*	43.0 *4*	1288.5	4^+	638.19	2^+	E2		α(K)exp=0.0060 *3*
x704.5 *10*								
792.0 *2*	6.3 *3*	1430.22	$(2)^+$	638.19	2^+	E2		α(K)exp=0.0036 *4*
812.8 *3*	2.9 *3*	1947.4	$2^-,3^-,4^-$	1134.6	3^-	E2+M1	1.0 *5*	α(K)exp=0.0050 *7*
828‡ *7*	3.2 *3*	2117?	6^+	1288.5	4^+	E2		α(K)exp=0.0035 *6*
880.5 *5*	2.1 *2*	1518.5	2^+	638.19	2^+	M1+(E2+E0)		α(K)exp=0.009 *3* Eγ: contaminated by a ^{181}Ta impurity line.
997.2‡ *5*	1.3 *2*	2985.2		1988.0	$2^+,3^+,4^+$	M1+E0+E2		α(K)exp=0.0070 *26*
1176.1‡ *5*	2.0 *2*	1814.3	3^-	638.19	2^+	E1		α(K)exp=0.0008 *3*

Continued on next page (footnotes at end of table)

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γ(^{150}Gd) (continued)

E_γ	I_γ[†]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	Comments
1349.8[‡] *5*	2.6 *2*	1988.0	$2^+,3^+,4^+$	638.19	2^+	E2	α(K)exp=0.0012 *5*
1430.4 *5*	3.5 *3*	1430.22	$(2)^+$	0.0	0^+	(E2)	Mult.: from adopted gammas.
1518.2 *5*	2.6 *2*	1518.5	2^+	0.0	0^+	E2	Mult.: from adopted gammas.

[†] Relative photon intensities are given for 13.4-MeV protons.
[‡] γ unplaced by authors, placed by evaluators based on data from other reactions.
[#] Deduced from Ice and Iγ taken at 12.5 and 13.4 MeV normalized to α(K)exp(638γ)=0.00625 (E2 theory).
[@] Obscured in γ-spectrum. Eγ derived from E(ce).
[x] γ ray not placed in level scheme.

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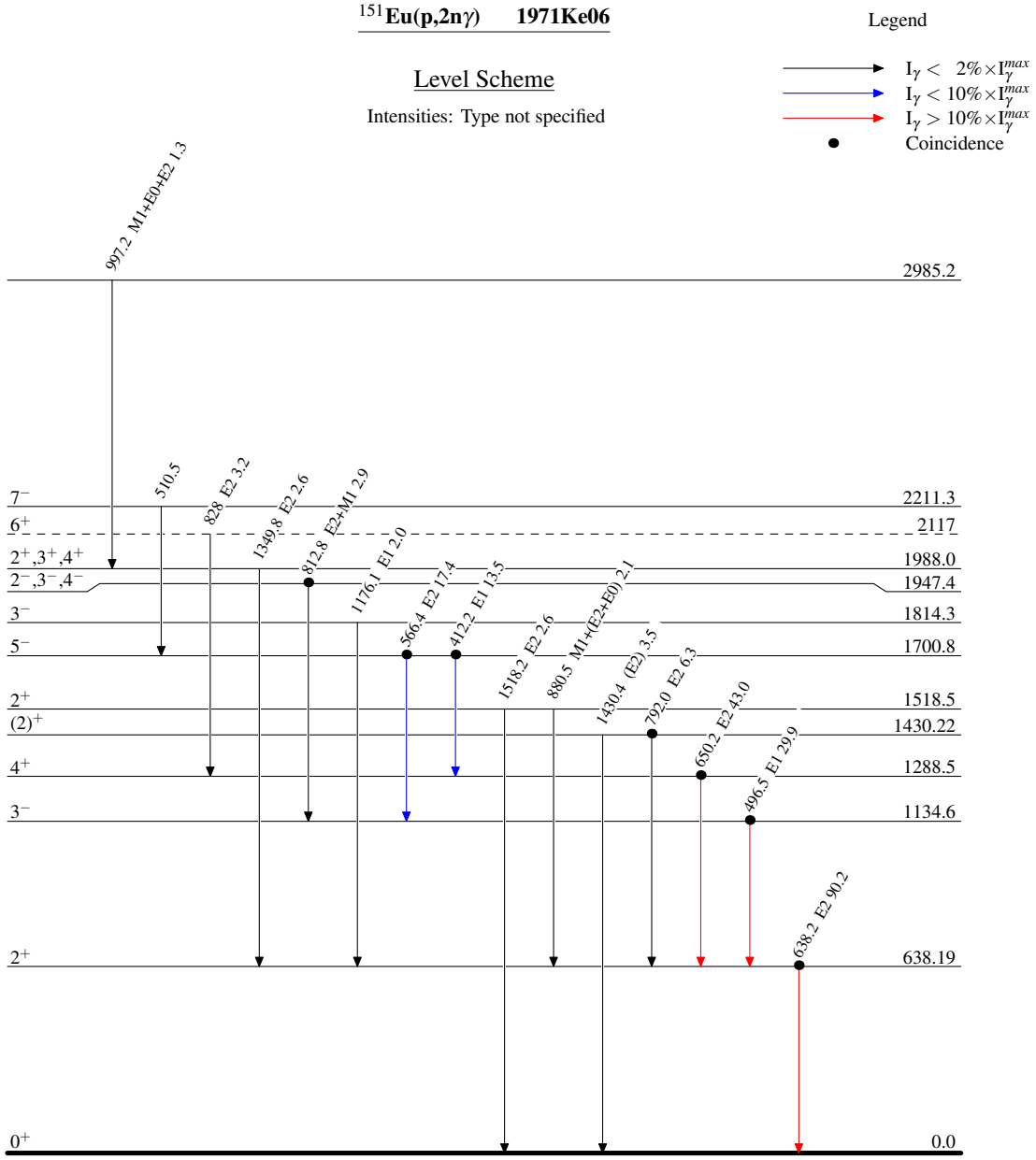
Level Scheme

Intensities: Type not specified



$^{150}_{64}Gd_{86}$