^{87}Rb(n,n′γ) 1980Ba29

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	T. D. Johnson and W. D. Kulp(a)	NDS 129, 1 (2015)	27-Jul-2015

Data are from 1980Ba29, E(n)=0.55-2.1 MeV, γ excitation functions measured and compared with Hauser-Feshbach calculations.
1972To16: E(n)=0.3-2.2 MeV, measured neutrons (BF3-detector) and γ′s. γ′s above 1800 keV were not analyzed because of interference with background, ^{85}Rb lines also present.
1973Ba25: E(n)=0.12-1.91 MeV, neutron time-of-flight spectrometer.

^{87}Rb Levels

E(level)	Jπ†	Comments
0.0	3/2⁻	
402.56 *6*	5/2⁻	
845.42 *10*	(1/2)⁻	Jπ: The authors state that the 845 keV γ excitation function leads to a better fit for 1/2⁻ than for 3/2⁻.
1349.6? *10*		
1389.72 *9*	(3/2)⁻	Jπ: L(p,p′)=2 allows 1/2⁻ to 7/2⁻. γ excitation rules out 1/2⁻,5/2⁻, and 7/2⁻.
1462.99 *15*	(1/2)⁻	Jπ: L(p,p′)=2 allows 1/2⁻ to 7/2⁻. L(^{3}He,d)=1 limits to 1/2⁻, 3/2⁻ and the Hauser-Feshbach fit in 1980Ba29 narrows this to 1/2⁻.
1577.6 *3*	9/2⁺	Jπ: Jπ is fit best by Jπ=11/2⁺ in the Hauser-Feshbach analysis, but Jπ=9/2⁺ is also allowed. Note also that the deexciting 1578 γ may be from the 1/2⁻,3/2⁻ level at 1578 keV, and the 1175γ is the one measured, not the 1578γ.
1740.60 *17*	(3/2)⁻	Jπ: L(p,p′)=2 allows 1/2⁻ to 7/2⁻. γ excitation rules out 1/2⁻,5/2⁻, and 7/2⁻.
1950.0 *3*	(1/2)‡	
1999.3? *7*	(1/2)‡	

† From ^{87}Rb Adopted Levels, unless otherwise noted.
‡ From comparison of γ excitation functions with Hauser-Feshbach calculations.

γ(^{87}Rb)

E_i(level)	J_i^π	E_γ	I_γ	E_f	J_f^π	Mult.	Comments
402.56	5/2⁻	402.56 *6*		0.0	3/2⁻		
845.42	(1/2)⁻	845.4 *1*		0.0	3/2⁻		
1349.6?		947.0†		402.56	5/2⁻		E_γ: from 1973Ba25 only, no uncertainty is given.
1389.72	(3/2)⁻	987.2 *2*	24	402.56	5/2⁻		
		1389.7 *1*	100	0.0	3/2⁻		
1462.99	(1/2)⁻	1060.4 *2*	15	402.56	5/2⁻		
		1463.0 *2*	100	0.0	3/2⁻		
1577.6	9/2⁺	1175.0 *3*	100	402.56	5/2⁻		E_γ: Note that the 1175 γ from the 1578 level may be influenced by an 1175 γ in ^{85}Rb and also by the 1175γ from the 1/2⁻,3/2⁻ member of the 1578 level doublet.
		1578.0 *3*	4	0.0	3/2⁻	[E3]	E_γ: Note that the branching ratio for this transition is significantly smaller than the branching ratios for both 1578γ transitions from the 1578 doublet in the Adopted Levels. This suggests that one or both of the adopted branchings may be incorrect.
1740.60	(3/2)⁻	894.2 *8*	2	845.42	(1/2)⁻		
		1337.9 *3*	36	402.56	5/2⁻		
		1740.7 *2*	100	0.0	3/2⁻		
1950.0	(1/2)	1547.4 *3*		402.56	5/2⁻		
		1949.5† *8*		0.0	3/2⁻		
1999.3?	(1/2)	1999.3† *7*		0.0	3/2⁻		

† Placement of transition in the level scheme is uncertain.

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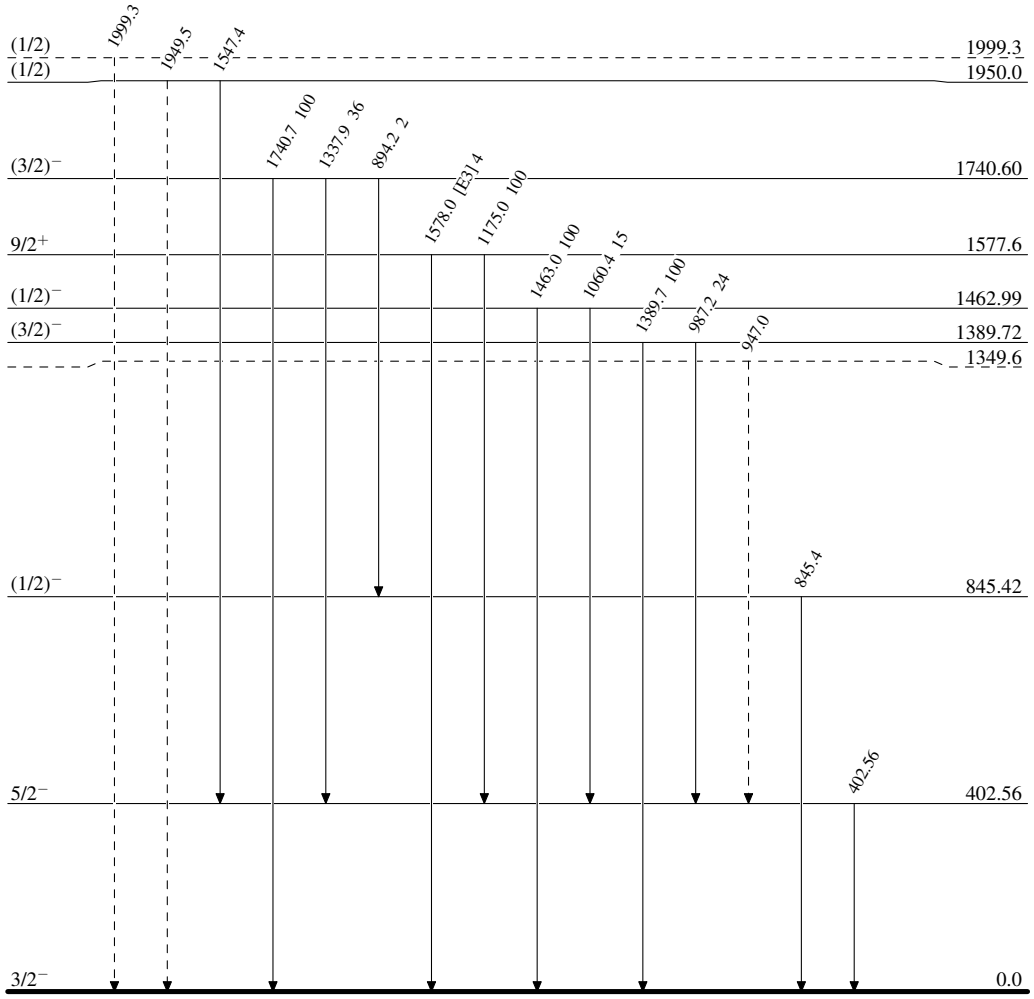
Legend

Level Scheme

Intensities: Relative photon branching from each level

γ Decay (Uncertain)



$^{87}_{37}Rb_{50}$