^{70}Br ε decay (2.2 s) 2000Pi15,2001DoZZ

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	G. Gürdal, E. A. Mccutchan	NDS 136, 1 (2016)	1-Jul-2016

Parent: ^{70}Br: E=2292.3 *8*; $J^\pi=9^+$; $T_{1/2}$=2.2 s *2*; Q(ε)=10504 *15*; %ε+%$β^+$ decay=100.0

2000Pi15: ^{40}Ca(^{32}S,pn), E(^{32}S)=110 MeV. γ-rays were measured using OSIRIS spectrometer. Measured γ, γγ.

2001DoZZ: ^{40}Ca(^{36}Ar,αpn), E(^{36}Ar)=169 MeV. GSI-mass separator and tape collector, 13 Ge detectors and a plastic scintillator. Measured Eγ, βγγ.

2002Ro25, 2002Ro16: ^{40}Ca(^{36}Ar,αpn), E(^{36}Ar)=169 MeV. ISOLDE mass-separator, tape collector, Euroball-Cluster and Clovers, total absorption spectrometer consists of one NaI, two Si detectors and one Ge detector. Measured βγγ, βγγ(t). Deduced $T_{1/2}$.

With a decay energy of 10.6 MeV and the highest observed level at 6.0 MeV, the decay scheme is most likely incomplete.

^{70}Se Levels

E(level)†	J^π‡	Comments
0.0	0^+	
944.6	2^+	
1600.6	2^+	
2037.9	4^+	
2382.6	4^+	
3001.6	6^+	
3647	(6^+)	
3913.9	7^-	
4035.5	8^+	
4604.8	8^+	2002Ro25 report a 958γ depopulating this level, but no final level was given. As there is no corresponding final level in the Adopted Levels, the 958γ is not adopted here.
4952.8	(9)	J^π: from 348.0γ to 8^+ suggested in ε decay (2000Pi15) but the placement of the γ is uncertain.
5204.3	(10^+)	
5691.7	(10^+)	
6014.8		

† From a least-squares fit to Eγ's, by the evaluators.

‡ From Adopted Levels.

ε,$β^+$ radiations

E(decay)	E(level)	Iβ+ ‡	Iε‡	Log *ft*	I(ε+β+)‡	Comments
(7105 *15*)	5691.7	1.2 *2*	0.013 *4*	5.52 *16*	1.2† *2*	av Eβ=2.14×10^3 *15*; εK=0.0099 *22*; εL=0.00112 *25*; εM+=0.00022 *5*
(8192 *15*)	4604.8	74	0.45	4.1	74†	av Eβ=2.67×10^3 *15*; εK=0.0053 *10*; εL=0.00060 *11*; εM+=0.000118 *21* I(ε+$β^+$): I(γ+ce)=I(γ+ce)(690.2γ) + (ΣI(γ+ce)(to g.s))=75 *+18−33* (2000Pi15).

† Reported in 2001DoZZ.

‡ Absolute intensity per 100 decays.

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γ(^{70}Se)

No absolute normalization is provided since decay scheme is incomplete.

E_γ †	I_γ †	E_i(level)	J_i^π	E_f	J_f^π	E_γ †	I_γ †	E_i(level)	J_i^π	E_f	J_f^π
348.0#	<10	4952.8	(9)	4604.8	8^+	963.7	92 *10*	3001.6	6^+	2037.9	4^+
569.0	33 *11*	4604.8	8^+	4035.5	8^+	1033.6	33 *15*	4035.5	8^+	3001.6	6^+
656‡		1600.6	2^+	944.6	2^+	1062.0#	<5	6014.8		4952.8	(9)
690.2	42 *14*	4604.8	8^+	3913.9	7^-	1093.3	96 *11*	2037.9	4^+	944.6	2^+
782‡		2382.6	4^+	1600.6	2^+	1168.8#	<7	5204.3	(10^+)	4035.5	8^+
911.7	63 *15*	3913.9	7^-	3001.6	6^+	1604‡		4604.8	8^+	3001.6	6^+
944.6	100 *13*	944.6	2^+	0.0	0^+	1656.2#	<5	5691.7	(10^+)	4035.5	8^+
958‡		4604.8	8^+	3647	(6^+)						

† From 2000Pi15, unless otherwise noted.
‡ From 2002Ro25 in coin with 569γ, not given in 2000Pi15.
# Placement of transition in the level scheme is uncertain.

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Decay Scheme

Intensities: Type not specified