Adopted Levels, Gammas

History			
Type	Author	Citation	Literature Cutoff Date
Full Evaluation	John Cameron, Jun Chen and Balraj Singh, Ninel Nica	NDS 113,365 (2012)	15-Jan-2012

Q(β^-)=4865.11 *20*; S(n)=4303.60 *6*; S(p)=13934 *14*; Q(α)=−8807.0 *8* 2012Wa38
Note: Current evaluation has used the following Q record 4865.13 20 *4303*.60 *6* 13934 *13* −8807.0 *7* 2011AuZZ.
S(2n)=14192.87 *20*, S(2p)=27114 *38* (2011AuZZ).
Values in 2003Au03: Q(β^-)=4865.17 *20*, Q(α)=−8829 *16*, S(2n)=14192.64 *22*, S(2p)=^{271}110 *40*. S(n) and S(p) are the same as in 2011AuZZ.
1971Ar32: production of ^{37}S in ^{232}Th(^{40}Ar,X), E=290 MeV; measured fragments isotopic yields.
Additional information 1.
2009No01: calculated levels, J^π, single-particle energies.
2000Ko23: calculated single-particle neutron, proton levels, J^π.
1988Wa04: calculated levels, branching ratios, log *ft*, transition probabilities, $T_{1/2}$. Shell model.
1986Wo02: calculated levels, single nucleon transfer spectroscopic factors.

^{37}S Levels

Cross Reference (XREF) Flags

A	^{37}P β^- decay (2.31 s)	E	^{36}S(d,p),(pol d,p)
B	^{38}P β^-n decay (0.64 s)	F	^{36}S(^{14}C,^{13}C),(^{18}O,^{17}Oγ)
C	^{2}H(^{36}S,^{37}Sγ)	G	^{37}Cl(t,^{3}He)
D	^{36}S(n,γ) E=thermal	H	^{40}Ar(n,α)

E(level)†	J$^\pi$‡	$T_{1/2}$	XREF	Comments
0	7/2$^-$	5.05 min *2*	ABCDEFGH	%β^-=100 $T_{1/2}$: weighted average of 5.04 min *2* (1946Bl01), 5.07 min *1* (1959El41), and 4.99 min *2* (1974Li09). J^π: L(d,p)=3, L+1/2 from $A_y(\theta)$ in (pol d,p). Mean energy-integrated reaction cross section=2.26 b *14*, r_0^2=1.16 fm^2 *7* (1999Ai02) in Si(^{37}S,X) at 45 MeV/nucleon.
646.177 *14*	3/2$^-$		A CDEFGH	XREF: E(645.84). J^π: L(d,p)=1, L+1/2 from $A_y(\theta)$ in (pol d,p).
1397.51 *18*	(3/2)$^+$		A CDE GH	XREF: C(?)G(?). J^π: L(d,p)=2, L−1/2 preferred over L+1/2 from $A_y(\theta)$ in (pol d,p).
1991.93 *5*	3/2$^-$		CDE	XREF: E(1991.1). J^π: L(d,p)=1, L+1/2 from $A_y(\theta)$ in (pol d,p); also γ to 7/2$^-$.
2022.88 *10*	(7/2)$^-$		CDE G	XREF: C(?)E(2021.0). J^π: L(d,p)=3, L+1/2 preferred over L−1/2 from $A_y(\theta)$ in (pol d,p).
2200 *50*			H	
2514.8 *3*	(5/2)$^-$		E	J^π: L(d,p)=3, L−1/2 preferred over L+1/2 from $A_y(\theta)$ in (pol d,p).
2637.87 *4*	1/2$^-$		CDE	J^π: L(d,p)=1, L-1/2 from $A_y(\theta)$ in (pol d,p).
2776.3 *7*			E Gh	
2978 *15*			Gh	
3120 *2*	(9/2)$^+$		E	J^π: L(d,p)=4, L+1/2 preferred over L−1/2 from $A_y(\theta)$ in (pol d,p).
3261.91 *5*	3/2$^-$		DE G	XREF: E(3262.5)G(?). J^π: L(d,p)=1, L+1/2 from $A_y(\theta)$ in (pol d,p).
3355.4 *4*	(3/2)$^+$		E Gh	J^π: L(d,p)=2, L−1/2 preferred over L+1/2 from $A_y(\theta)$ in (pol d,p).
3442.1 *4*	(7/2)$^-$		E Gh	J^π: L(d,p)=3, L+1/2 preferred over L−1/2 from $A_y(\theta)$ in (pol d,p).
3492.72 *8*	3/2$^-$		DE h	J^π: L(d,p)=1, L+1/2 from $A_y(\theta)$ in (pol d,p).
3555 *2*	(3/2)		E h	J^π: L(d,p)=(1,2), L+1/2 for L=1 and L−1/2 for L=2 preferred over L−1/2 and L+1/2, respectively from $A_y(\theta)$ in (pol d,p).
3605 *2*	(1/2$^-$,3/2$^+$)		E h	J^π: L(d,p)=(1,2), L−1/2 for L=1 and L+1/2 for L=2 preferred over L+1/2 and L-1/2, respectively from $A_y(\theta)$ in (pol d,p).

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{37}S Levels (continued)

E(level)†	Jπ‡	XREF	Comments
			Jπ: L(d,p)=(1,2), L−1/2 for L=1 and L+1/2 for L=2 preferred over L+1/2 and L−1/2, respectively from $A_y(\theta)$ in (pol d,p).
3666 *2*	(3/2+)	E h	Jπ: L(d,p)=(2), L−1/2 preferred over L+1/2 from $A_y(\theta)$ in (pol d,p).
3918 *2*	(1/2−)	E	Jπ: L(d,p)=(1), L−1/2 preferred over L+1/2 from $A_y(\theta)$ in (pol d,p).
3967 *2*	(3/2−)	E	Jπ: L(d,p)=(1), L+1/2 preferred over L−1/2 from $A_y(\theta)$ in (pol d,p).
4004.8 *13*	1/2−	E	Jπ: L(d,p)=1, L-1/2 from $A_y(\theta)$ in (pol d,p).
4072 *2*	(3/2−)	E	Jπ: L(d,p)=(1), L+1/2 preferred over L−1/2 from $A_y(\theta)$ in (pol d,p).
4147 *2*		E	
(4303.61 *4*)	1/2+	D	Jπ: s-wave capture in 0+ g.s. of ^{36}S. E(level): in agreement with S(n)=4303.60 *6* (2011AuZZ).
4368 *2*	(5/2−)	E	Jπ: L(d,p)=(3), L−1/2 preferred over L+1/2 from $A_y(\theta)$ in (pol d,p).
4411 *2*	(5/2−,9/2+)	E	Jπ: L(d,p)=(3,4), L−1/2 for L=3 and L+1/2 for L=4 preferred over L+1/2 and L−1/2, respectively from $A_y(\theta)$ in (pol d,p).
4471 *2*	(3/2−)	E	Jπ: L(d,p)=(1), L+1/2 preferred over L−1/2 from $A_y(\theta)$ in (pol d,p).
4492 *2*	(3/2−)	E	Jπ: L(d,p)=(1), L+1/2 preferred over L−1/2 from $A_y(\theta)$ in (pol d,p).
4548 *2*	(3/2−)	E	Jπ: L(d,p)=(1), L+1/2 preferred over L−1/2 from $A_y(\theta)$ in (pol d,p).
4675 *2*	(7/2−,9/2+)	E	Jπ: L(d,p)=(3,4), L+1/2 preferred over L−1/2, from $A_y(\theta)$ in (pol d,p).
4754 *2*	(7/2−,9/2+)	E	Jπ: L(d,p)=(3,4), L+1/2 preferred over L−1/2, from $A_y(\theta)$ in (pol d,p).
4858 *2*	5/2−	E	Jπ: L(d,p)=3, L-1/2 from $A_y(\theta)$ in (pol d,p).
4881.7# *17*	(5/2−)	E	Jπ: L(d,p)=(3) for 4882+4893 doublet, L−1/2 preferred over L+1/2, from $A_y(\theta)$ in (pol d,p).
4893# *2*	(5/2−)	E	Jπ: see comment for 4881.7 level.
5054 *2*	(9/2)+	E	Jπ: L(d,p)=4, L+1/2 preferred over L−1/2 from $A_y(\theta)$ in (pol d,p).
5090 *2*	(9/2)+	E	Jπ: L(d,p)=4, L+1/2 preferred over L−1/2 from $A_y(\theta)$ in (pol d,p).
5122 *2*	(9/2)+	E	Jπ: L(d,p)=4, L+1/2 preferred over L−1/2 from $A_y(\theta)$ in (pol d,p).
5505 *2*	5/2−	E	Jπ: L(d,p)=3, L-1/2 from $A_y(\theta)$ in (pol d,p).
5666 *2*	5/2−	E	Jπ: L(d,p)=3, L-1/2 from $A_y(\theta)$ in (pol d,p).
5720 *2*	5/2−	E	Jπ: L(d,p)=3, L-1/2 from $A_y(\theta)$ in (pol d,p).

† From least-squares fit to Eγ's for levels populated in γ-ray studies. Others are primarily from (d,p).
‡ From ^{36}S(d,p),(pol d,p).
# 4882 and 4894 are unresolved, L=(3) and (2J+1)S=0.22 are for the doublet analyzed as one group in 1989Ec01.

γ(^{37}S)

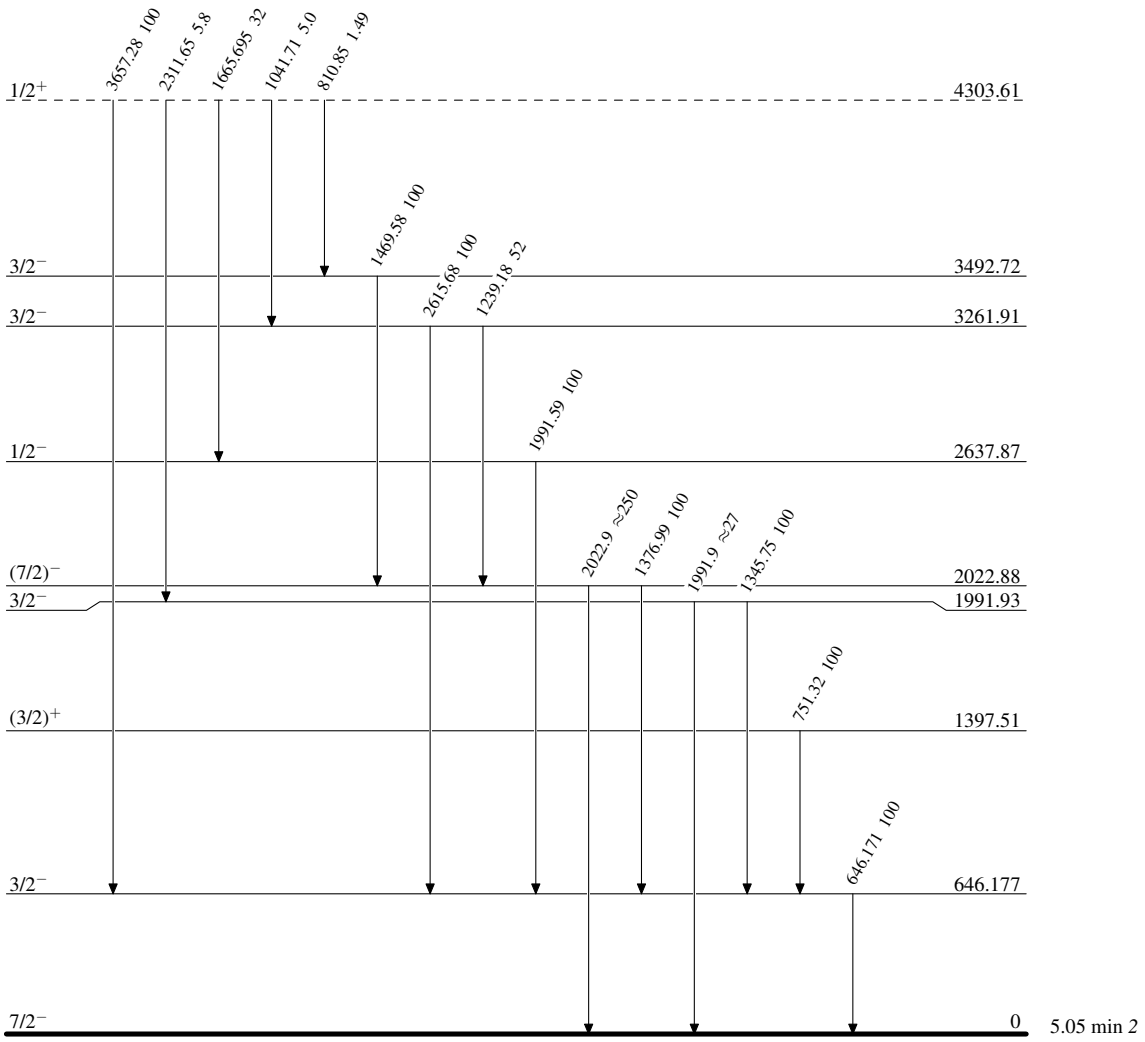
E_i(level)	J_i^π	E_γ†	I_γ†	E_f	J_f^π
646.177	3/2−	646.171 *14*	100	0	7/2−
1397.51	(3/2)+	751.32 *18*	100	646.177	3/2−
1991.93	3/2−	1345.75 *5*	100 *11*	646.177	3/2−
		1991.9 *5*	≈27	0	7/2−
2022.88	(7/2)−	1376.99 *21*	100 *25*	646.177	3/2−
		2022.9 *5*	≈250	0	7/2−
2637.87	1/2−	1991.59 *4*	100	646.177	3/2−
3261.91	3/2−	1239.18 *11*	52 *8*	2022.88	(7/2)−
		2615.68 *12*	100 *17*	646.177	3/2−
3492.72	3/2−	1469.58 *9*	100	2022.88	(7/2)−
(4303.61)	1/2+	810.85 *7*	1.49 *19*	3492.72	3/2−
		1041.71 *4*	5.0 *6*	3261.91	3/2−
		1665.695 *22*	32 *4*	2637.87	1/2−
		2311.65 *8*	5.8 *7*	1991.93	3/2−
		3657.28 *7*	100 *11*	646.177	3/2−

† From ^{36}S(n,γ) E=thermal.

Adopted Levels, Gammas

Level Scheme

Intensities: Relative photon branching from each level



$^{37}_{16}S_{21}$