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^-)=7.90×10^3 *4*; S(n)=6.82×10^3 *4*; S(p)=1.389×10^4 *8*; Q(α)=−1.295×10^4 *9* 2012Wa38
Note: Current evaluation has used the following Q record 7901 38 *6816* 40 *13867* 68 −12984 *78* 2011AuZZ.
Q(β^-n)=3597 *38*, S(2n)=10281 *38*, S(2p)=33354 *80* (2011AuZZ).
Values in 2003Au03: Q(β^-)=7900 *40*, S(n)=6810 *40*, S(p)=13800 *130*, Q(α)=−12890 *80*, Q(β^-n)=3600 *40*, S(2n)=10280 *40*, S(2p)=33440 *180*.
1988Fi04: ^{48}Ca(^{36}S,^{37}P) E=198 MeV, measured ^{37}P spectra, deduced mass of ^{37}P.
1991Or01: Ta(^{48}Ca,X) E=55 MeV/nucleon. Measured projectile-like spectra at GANIL facility. Measured mass excess=−19.04 MeV.
1997Fo01: ^{208}Pb(^{37}Cl,X) E=230 MeV/nucleon. Measured cross section, σ=0.83 mb.
1999Ai02: Si(^{37}P,X) E=39.71 MeV/nucleon. Measured cross sections and average radius at NSCL, MSU facility.
Additional information 1.
2006Ro34: ^{2}H(^{40}S,X) E=99.3 MeV/nucleon and ^{2}H(^{42}S,X) E=99.8 MeV/nucleon. Measured cross section at NSCL, MSU facility: σ=19 mb *2* for ^{40}S beam, 8.0 mb *9* for ^{42}S beam.
2006Kh08: Si(^{37}P,X) E=57.02 and 49.78 MeV/nucleon. Measured cross sections and average radius at GANIL facility.
2007No13: ^{9}Be(^{40}Ar,X) E=100 MeV/nucleon. Measured cross section at RIKEN facility.
2009No01: calculated energy splitting between 1/2$^+$ and 3/2$^+$ states.

^{37}P Levels

Cross Reference (XREF) Flags

A ^{9}Be(^{48}Ca,Xγ)
B ^{36}S(^{18}O,^{17}F)
C ^{48}Ca(^{36}S,^{37}P)
D ^{208}Pb(^{36}S,Xγ)

E(level)	J$^\pi$[†]	T$_{1/2}$	XREF	Comments
0[@]	(1/2$^+$)	2.31 s *13*	ABCD	%β^-=100 Calculated %β^-n=0.02 (1997Mo25). T$_{1/2}$: from 1986Du07. σ_R=2.9 b *10* at 57.02 MeV/nucleon, 2.54 b *7* at 49.78 MeV/nucleon (2006Kh08); 2.55 b *20* at 39.71 MeV (1999Ai02). Average r$_0^2$=1.23 fm^2 *3* (2006Kh08), 1.31 fm^2 *10* (1999Ai02).
861[&] *1*	(3/2$^+$)		ABCD	
1300[@] *1*	(5/2$^+$)		B D	
2481[#@] *1*	(9/2$^+$)		BcD	
2570[#&] *30*	(7/2$^+$)[‡]		Bc	
3350[#@] *2*	(13/2$^+$)		BcD	
3560[#&] *30*	(11/2$^+$)[‡]		Bc	
4395?[#@] *2*			CD	
6052?[@] *2*			D	
7897?[@] *2*			D	

[†] From comparisons with shell-model predictions (2007Ho08).
[‡] Assignment proposed by 2007Ho08 based on predictions of shell-model calculations.

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{37}P Levels (continued)

[#] Complex and uncertain peak in (^{36}S,^{37}P), probably consists of several levels. Association of this level to level(s) in other studies is arbitrary.

[@] Band(A): γ cascade based on (1/2$^+$). Configuration=$\pi 2s^1_{1/2}\otimes\nu$(0$^+$, 2$^+$, 4$^+$, 6$^+$ states in ^{36}Si core).

[&] Band(B): Possible band based on (3/2$^+$). Configuration=$\pi 2s^1_{1/2}$ and $\pi 1d^1_{3/2}$ coupled to $\otimes$0$^+$,2$^+$,4$^+$,6$^+$ neutron states in ^{36}Si core.

γ(^{37}P)

E$_i$(level)	J$_i^\pi$	E$_\gamma$[†]	I$_\gamma$[†]	E$_f$	J$_f^\pi$
861	(3/2$^+$)	861 *1*	100	0	(1/2$^+$)
1300	(5/2$^+$)	439 *1*	37 *4*	861	(3/2$^+$)
		1300 *1*	100 *4*	0	(1/2$^+$)
2481	(9/2$^+$)	1181 *1*	100	1300	(5/2$^+$)
3350	(13/2$^+$)	869 *1*	100	2481	(9/2$^+$)
4395?		1045[‡] *1*	100	3350	(13/2$^+$)
6052?		1657[‡] *1*	100	4395?	
7897?		1845[‡] *1*	100	6052?	

[†] From ^{208}Pb(^{36}S,Xγ).

[‡] Placement of transition in the level scheme is uncertain.

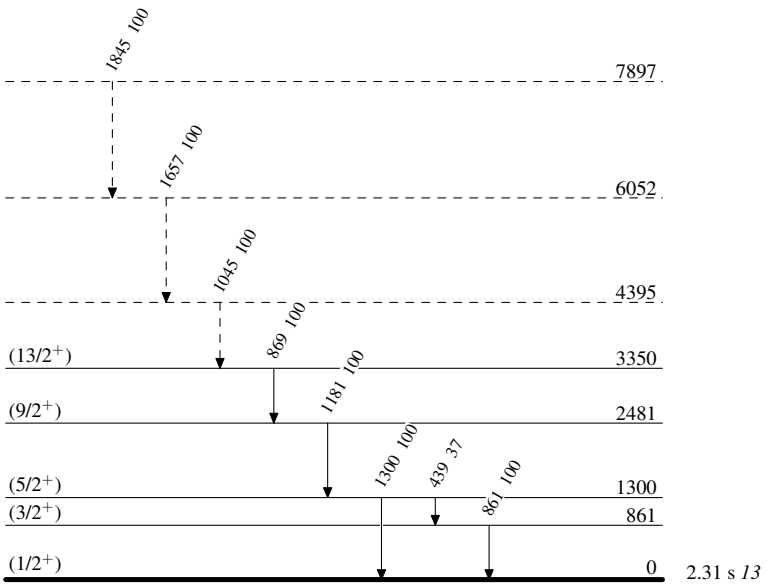
Adopted Levels, Gammas

Legend

Level Scheme

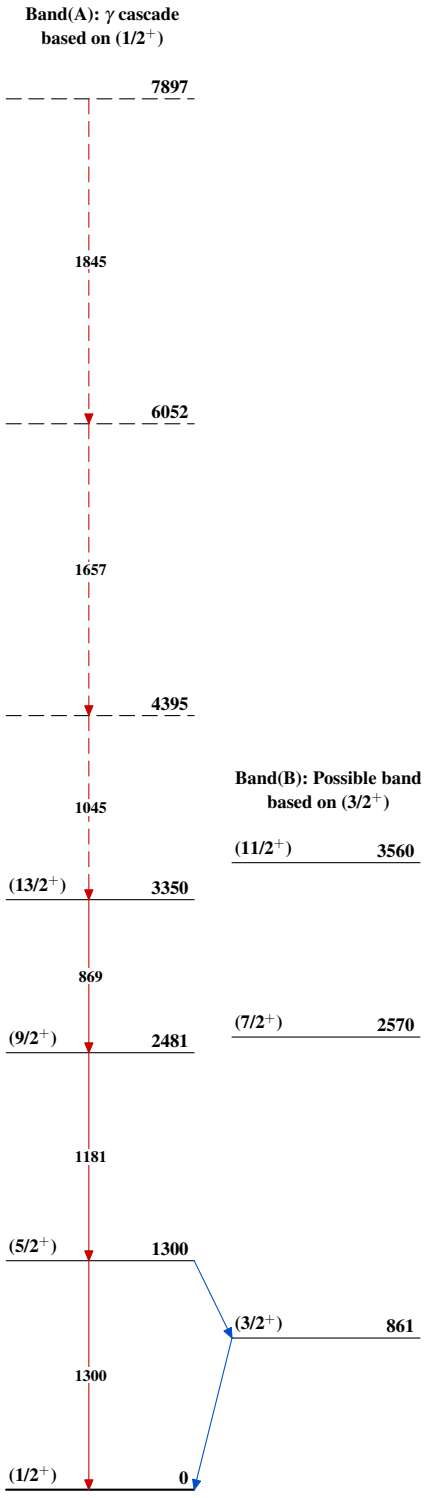
Intensities: Relative photon branching from each level

γ Decay (Uncertain)



$^{37}_{15}P_{22}$

Adopted Levels, Gammas



$^{37}_{15}P_{22}$