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^-)=−1.66×10^4 *SY*; S(n)=1.476×10^4 *4*; S(p)=3008.0 *8*; Q(α)=−6176.7 *8* 2012Wa38

Note: Current evaluation has used the following Q record.

Q(εp)=9806.8 *8*, S(2n)=34066 *196* (syst), S(2p)=4666.3 *11* (2011AuZZ).

Values in 2003Au03: S(n)=14790 *50*, S(p)=3025 *24*, Q(α)=6203 *22*, Q(εp)=9781 *22*, S(2n)=33910 *200* (syst), S(2p)=4692 *22*.

S(n)=14756 *46*; S(p)=3007.4 *9*; Q(α)=−6176.3 *9* 2011AuZZ

2006BuZW (also 2007Bu36,2007Bu15): ^{37}Ca beam at 61 MeV/nucleon produced by fragmentation of ^{40}Ca beam at 95 MeV/nucleon at SPEG, GANIL facility. The ^{37}Ca beam bombarded a Be target and prompt γ rays were measured using an array of 74 BaF_2 detectors. Also three Ge Clover detectors were used. Prompt γ-ray spectrum from ^{37}Ca is displayed in figure 3 of 2006BuZW but not in any companion conference publications (2007Bu36,2007Bu15). Strong wide peaks are present in this spectrum at approximate energies of 500 and 3000 keV; and weaker peaks at 950, 1100 and 1700 keV. 2006BuZW did not identify any of these peaks with levels in ^{37}Ca.

^{37}Sc, ^{38}Sc and ^{38}Ti nuclides which could decay by ε decay, proton emission and delayed-proton emission, respectively to ^{37}Ca have not yet been identified.

2007Do17: measured $T_{1/2}$ and %εp.

Mass measurement: 2007Ri08.

2008Ma17: structure calculations for binding energy, S(2n).

^{37}Ca Levels

Cross Reference (XREF) Flags

A C(^{38}Ca,nγ),H(^{38}Ca,nγ)
B ^{40}Ca(^{3}He,^{6}He)

E(level)	J$^\pi$	$T_{1/2}$	XREF	Comments
0	(3/2$^+$)	181.1 ms *10*	AB	%ε+%β^+=100; %εp=82.1 *7* (1997Tr05) %εp: others: 72.2 *43* (2007Do17), 76 *3* (1974Se11). J$^\pi$: mirror state of 3/2$^+$ ground state of ^{37}Ca. $T_{1/2}$: from 1995Tr03. Others: 181.7 ms *36* (2007Do17), 177 ms *5* (1966Po12), 173 ms *4* (1964Ha42).
1606.4 *13*	(1/2$^+$)		AB	J$^\pi$: possible mirror of 1726.6, 1/2$^+$ in ^{37}Cl.
2939.0 *16*	(3/2$^+$,5/2$^+$)		A	J$^\pi$: 5/2$^+$ from possible mirror of 3086.1, 5/2$^+$ in ^{37}Cl.
3103.7 *16*	(7/2$^-$)		A	J$^\pi$: possible mirror of 3103.5, 7/2$^-$ in ^{37}Cl. $T_{1/2}$: estimated (by 2009AmZZ) as greater than a few picoseconds from Doppler-shift in energy between the two sets of rings in SeGA array.
3354 *2*	(3/2$^+$,5/2$^-$)†		A	
3530 *3*	(3/2$^+$,5/2$^-$)†		A	
3612 *4*	(3/2$^+$,5/2$^-$)†		A	
3842 *4*	(3/2$^+$)		A	J$^\pi$: possible mirror of 4016.3, 3/2$^+$ in ^{37}Cl.

† Possible mirror of any of the three states at 3626.8,3/2$^+$; 3707.8,3/2$^+$ and 3741.2,5/2$^-$ in ^{37}Cl.

Adopted Levels, Gammas (continued)

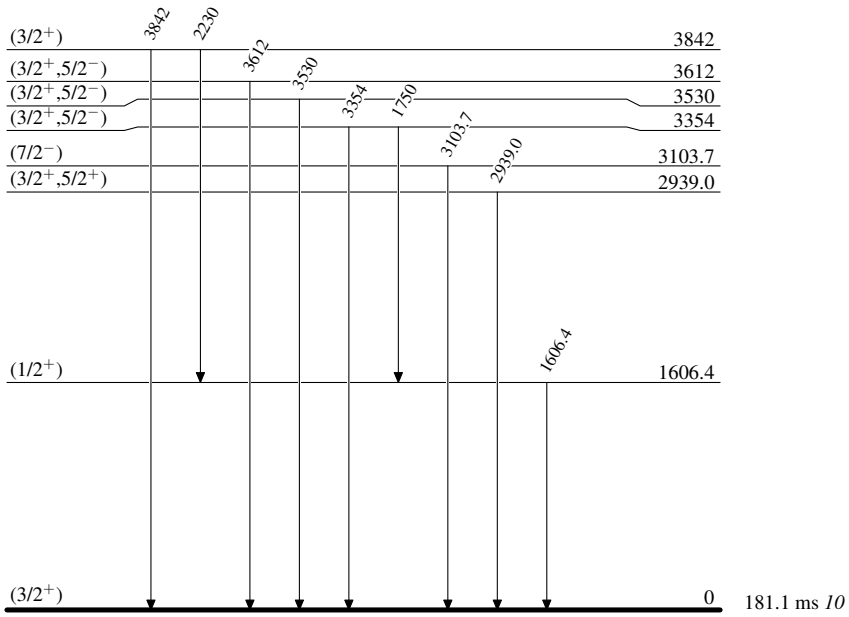
$\gamma(^{37}Ca)$

E_i(level)	J_i^π	E_γ	E_f	J_f^π	Comments
1606.4	$(1/2^+)$	1606.4 *13*	0	$(3/2^+)$	
2939.0	$(3/2^+,5/2^+)$	≈1300†			
		2939.0 *16*	0	$(3/2^+)$	
3103.7	$(7/2^-)$	3103.7 *16*	0	$(3/2^+)$	
3354	$(3/2^+,5/2^-)$	1750	1606.4	$(1/2^+)$	
		3354 *2*	0	$(3/2^+)$	
3530	$(3/2^+,5/2^-)$	3530 *3*	0	$(3/2^+)$	
3612	$(3/2^+,5/2^-)$	3612 *4*	0	$(3/2^+)$	
3842	$(3/2^+)$	2230	1606.4	$(1/2^+)$	2230γ observed in coin with ^{37}Ca recoils.
		3842 *4*	0	$(3/2^+)$	

† Placement of transition in the level scheme is uncertain.

Adopted Levels, Gammas

Level Scheme



$^{37}_{20}Ca_{17}$