Adopted Levels, Gammas

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	C. D. Nesaraja, E. A. Mccutchan	NDS 133, 1 (2016)	30-Sep-2015

Q(β^-)=5760 *70*; S(n)=7820 *80*; S(p)=11760 *70*; Q(α)=−10740 *80* 2012Wa38
S(2n)=3251 syst *780*; Q(β^-n)=−340 *70* (2012Wa38).

2006Wi10: β^-n decay of ^{42}S to ^{41}Cl, no definite evidence exists from measurements. An upper limit was set for %β^-n<1 from intensity of a 167γ. Other: %β^-n<4 (1995So03).

1981HuZT: $T_{1/2}$ via beta decay of ^{41}Cl produced by bombarding 600 MeV protons on uranium that was measured with a precise quartz crystal oscillator.

1974Gu10: $T_{1/2}$ via beta decay of ^{41}Cl produced in the three nucleon transfer reaction ^{181}Ta(^{40}Ar, ^{41}Cl).

1971Ar32: ^{41}Cl first identified in ^{232}Th(^{40}Ar,X) reaction at E=290 MeV. Identified using magnetic analysis and the ΔE-E technique with two Si detectors.

^{41}Cl Levels

Cross Reference (XREF) Flags

- A ^{41}S β^- decay (1.99 s)
- B ^{160}Gd(^{37}Cl,Xγ)
- C ^{176}Yb(^{36}S,Xγ)
- D ^{208}Pb(^{40}Ar,Xγ)

E(level)[†]	J$^\pi$[‡]	$T_{1/2}$	XREF	Comments
0[#]	(1/2$^+$)	38.4 s *8*	ABCD	%β^-=100 J$^\pi$: From probable allowed β feeding to 1/2$^+$ levels in ^{41}Ar and from 2013Sz02 based on an analogy with ^{37}Cl and ^{39}Cl where the yrast 5/2$^+$ level decays only to the 3/2$^+$ and not to the 1/2$^+$ level. $T_{1/2}$: from 1981HuZT. Other: 34 s *3* (1974Gu10).
129.70[#] *10*	(3/2$^+$)		ABCD	J$^\pi$: From 2013Sz02 based on an analogy with ^{37}Cl and ^{39}Cl where the yrast 5/2$^+$ level decays only to the 3/2$^+$ and not to the 1/2$^+$ level.
891.44[#] *22*	(5/2$^+$)		ABCD	
1445.1[#] *5*	(7/2$^+$)		A CD	
1475.0 *3*	(5/2$^-$,7/2$^-$)		D	J$^\pi$: From 2013Sz02 based on an analogy with ^{39}Cl. Note that the 7/2$^-$ alternative would require the 1346 γ to be M2.
2210.3[#] *4*	(9/2$^+$)		D	
2451.3[#] *10*	(11/2$^+$)		CD	J$^\pi$: (9/2$^+$) in ^{176}Yb(^{36}S,Xγ) (2003Ol03, 2004Ol05).
2716.9 *6*	(9/2$^-$,11/2$^-$)		D	

[†] From least-squares fits to Eγ's for levels populated in the multiple transfer reaction ^{208}Pb(^{40}Ar,Xγ).
[‡] Except as noted, assignments are based on yrast population arguments in the deep inelastic scattering reaction ^{176}Yb(^{36}S,Xγ) (2003Ol03, 2004Ol05) and multiple nucleon transfer reaction ^{208}Pb(^{40}Ar,Xγ) (2013Sz02) both of which have been compared with shell model calculations. Negative parity states are from comparison with states in ^{39}Cl from ^{208}Pb(^{40}Ar,Xγ) (2013Sz02).
[#] Band(A): Yrast structure.

Adopted Levels, Gammas (continued)

γ(^{41}Cl)

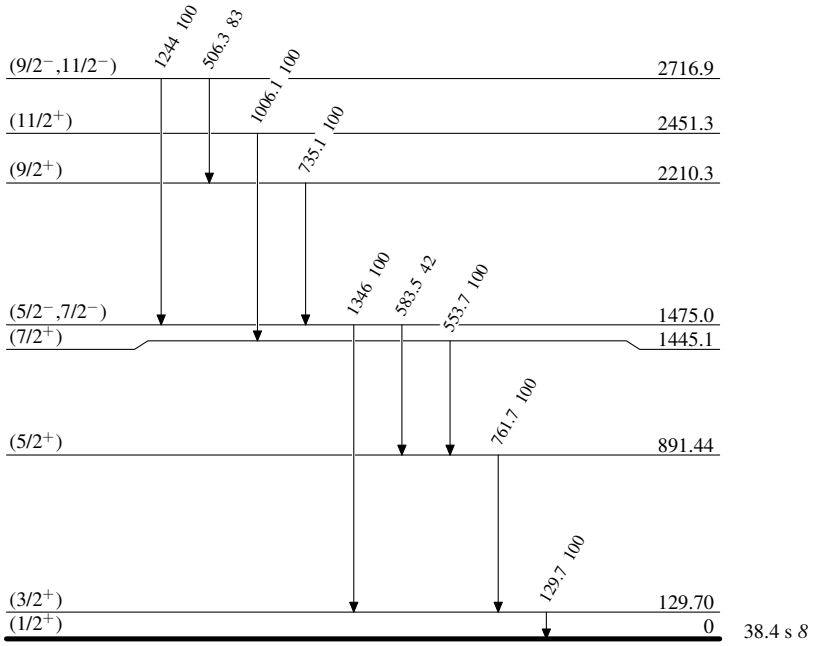
E_i(level)	J_i^π	E_γ †	I_γ †	E_f	J_f^π
129.70	(3/2$^+$)	129.7 *1*	100	0	(1/2$^+$)
891.44	(5/2$^+$)	761.7 *2*	100	129.70	(3/2$^+$)
1445.1	(7/2$^+$)	553.7 *4*	100	891.44	(5/2$^+$)
1475.0	(5/2$^-$,7/2$^-$)	583.5 *2*	42 *4*	891.44	(5/2$^+$)
		1346 *1*	100 *33*	129.70	(3/2$^+$)
2210.3	(9/2$^+$)	735.1 *3*	100	1475.0	(5/2$^-$,7/2$^-$)
2451.3	(11/2$^+$)	1006.1 *8*	100	1445.1	(7/2$^+$)
2716.9	(9/2$^-$,11/2$^-$)	506.3 *4*	83 *17*	2210.3	(9/2$^+$)
		1244 *1*	100 *33*	1475.0	(5/2$^-$,7/2$^-$)

† From ^{208}Pb(^{40}Ar,Xγ).

Adopted Levels, Gammas

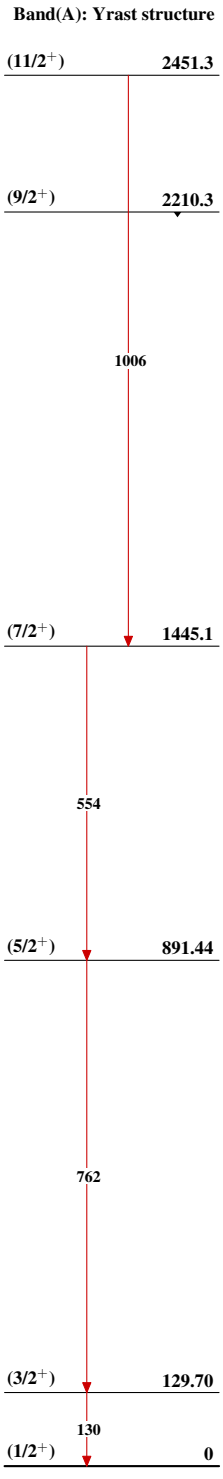
Level Scheme

Intensities: Relative photon branching from each level



$^{41}_{17}Cl_{24}$

Adopted Levels, Gammas



$^{41}_{17}Cl_{24}$