Adopted Levels, Gammas

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Ninel Nica, Balraj Singh	NDS 113,1563 (2012)	28-May-2012

Q(β^-)=1.139×10^4 *8*; S(n)=4.71×10^3 *3*; S(p)=2.29×10^4 *syst*; Q(α)=−1.71×10^4 *3* 2012Wa38

Note: Current evaluation has used the following Q record 11.61E3 11 *4458* 93 *22*.70E360-16.90E3 29 2011AuZZ.

Q(β^-n)=8926 *113*, S(2n)=6671 *92*, S(2p)=43016 *511* (2011AuZZ). S(2p) is from systematics.

Values in 2003Au03: Q(β^-)=11740 *260*, S(n)=4160 *230*, S(p)=23370 *910*, Q(α)=−16720 *620*, Q(β^-n)=9270 *240*, S(2n)=6380 *230*; S(2p)=43050 *830* (syst).

Q(β^-): 11630 *110* from mass excess=8590 *80* (2007Ju03) for ^{34}Mg and mass excess=−3040 *70* (2007Ju03) for ^{34}Al. The values are averages adopted by 2007Ju03 from their measurements of 8560 *90* for ^{34}Mg and −3100 *80* for ^{34}Al and respective values of 8810 *230* and −2930 *110* from 2003Au03.

1979We10: identification and production of ^{34}Mg in ^{9}Be(^{48}Ca,X) reaction at 212 MeV/nucleon.

Later papers for decay studies of ^{34}Mg nuclide: 1984La13, 1984Gu19.

Mass measurements: 2007Ju03 (Penning-trap method), 2001Sa72 and 2001Sa21, 1991Or01 and 1991Zh24.

2007No13: ^{9}Be(^{40}Ar,X) E=100 MeV/nucleon, RIKEN, measured production σ and momentum distribution.

Cross section and strong absorption radius measurement in Si(^{34}Mg,X) reaction at 43.43 MeV/nucleon: 2006Kh08.

2011Ka01: E=900 MeV/nucleon secondary ^{34}Mg beam from Be(^{48}Ca,X) primary reaction. Target=CH_2. Fragment separator at GSI facility. Measured interaction cross sections by detecting unreacted Mg particles by Bρ-ΔE-tof method. Deduced matter radius by Glauber model analysis. Comparison with HF and RMF predictions.

Structure calculations: 2012Li11, 2011Hi18, 2009No01, 2008Yo08, 2006Zh05, 2005Ro10, 2004Ot02, 2001Ca49.

Additional information 1.

^{34}Mg Levels

Cross Reference (XREF) Flags

A	^{34}Na β^- decay (5.5 ms)	D	^{34}Mg(p,p′γ)
B	^{35}Na β^-n decay (1.5 ms)	E	Coulomb excitation
C	^{9}Be(^{36}Si,Xγ)		

E(level)	J$^\pi$	T$_{1/2}$	XREF	Comments
0	0$^+$	20 ms *10*	CDE	%β^-=100; %β^-n=? Strong absorption r$_0^2$=1.255 fm^2 *30* (2006Kh08). Interaction σ=1372 mb *46* for Carbon and 568 mb *90* for Hydrogen (2011Ka01). The rms matter radius=3.23 fm *13* (2011Ka01). T$_{1/2}$: from 1984La03. Calculated half-life=74 ms (1997Mo25). Calculated %β^-n=27.2, %β^-2n=0.40 (1997Mo25).
660 *7*	2$^+$	40 ps *8*	CDE	B(E2)↑=0.057 *10* B(E2): weighted average of 0.054 *10* (2005Ch66) and B(E2)=0.063 *13* (2001Iw07). Other: ≤0.067 (1999Pr09). J$^\pi$: the only level populated in Coulomb excitation and (p,p′γ). T$_{1/2}$: 40 ps *8* if B(E2)=0.057 *10*, <52 ps if B(E2)>0.044 (2005Ch66, when feeding from 4$^+$ is considered).
2120? *22*	(4$^+$)		C	J$^\pi$: systematics of even-even nuclei, shell-model predictions.

Adopted Levels, Gammas (continued)

$\gamma(^{34}Mg)$

E_i(level)	J_i^π	E_γ	E_f	J_f^π	Comments
660	2^+	660 *7*	0	0^+	B(E2)(W.u.)=17 *3* E_γ: weighted average of 685 *16* (2006El03), 659 *14* (2005Ch66), 660 *10* (2001Yo03), 656 *7* (2001Iw07).
2120?	(4^+)	1460† *20*	660	2^+	E_γ: from 2001Yo03 (also 2002Sa11,2002Mo35,2002Yo04).

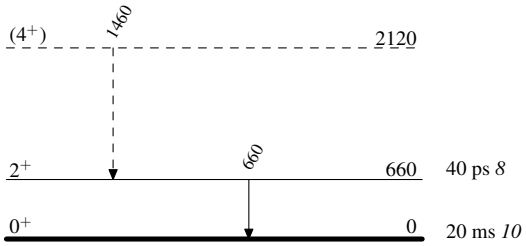
† Placement of transition in the level scheme is uncertain.

Adopted Levels, Gammas

Level Scheme

Legend

- - - - - - ► γ Decay (Uncertain)



$^{34}_{12}Mg_{22}$