Adopted Levels, Gammas

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Jun Chen	NDS 149, 1 (2018)	1-Jan-2018

Q(β^-)=18330 *SY*; S(n)=3630 *SY*; S(p)=20710 *SY*; Q(α)=−20010 *SY* 2017Wa10
ΔQ(β^-)=420, ΔS(n)=550, ΔS(p)=640, ΔQ(α)=780 (syst, 2017Wa10).
Q(β^-n)=16750 *410*, S(2n)=5300 *440*, S(2p)=47460 *800* (syst, 2017Wa10).
First identification of ^{39}Al nuclide by 1989Gu03 in ^{181}Ta(^{48}Ca,X) reaction.
Measurements with ^{181}Ta(^{48}Ca,X) reaction:
1989Gu03: E=55 MeV/nucleon ^{48}Ca beam was produced at GANIL; measured fragment spectra.
2007Ju03: E=60.3 MeV/nucleon ^{48}Ca beam at GANIL; measured mass excess by time-of-flight technique. Measured mass excess=20170 keV *630* as compared to 20650 *400* (syst) in 2017Wa10.
Measurements with ^{9}Be(^{48}Ca,X) reaction:
2004Gr20 (also 2003Gr22): E=60 MeV/nucleon ^{48}Ca beam at GANIL; measured β, γ, $T_{1/2}$ using Si and Ge detectors.
2000Sa21 (also 2001Sa72): E=60 MeV/nucleon; measured mass.
1999YoZW: also ^{181}Ta(^{48}Ca,X) E=70 MeV/nucleon; measured $T_{1/2}$ and β^-n. Results are tentative according to an email reply from the authors.
Nuclear structure calculations: 2013Li39, 2013Sh05, 2009Co21.

^{39}Al Levels

Cross Reference (XREF) Flags

A ^{9}Be(^{40}Si,^{39}Alγ)

E(level)	J^π	$T_{1/2}$	XREF	Comments
0	(5/2$^+$)	7.6 ms *16*	A	%β^-=100; %β^-n=?; %β^-2n=? J^π: from shell-model prediction (1997Mo25) and systematics of neighboring nuclei (2017Au03). $T_{1/2}$: from 2004Gr20, obtained in a beam-on mode where the implanted ions are registered continuously with the decaying betas. Other: 8 ms *2* (1999YoZW). Calculated half-life=7.2 ms (2009Co21, statistical approach using artificial neural network models), 4.4 ms (2003Mo09, QRPA). %β^-n=97 *22* (tentative result according to 1999YoZW). Calculated %β^-n=88.1, %β^-2n=2.0 (2003Mo09).
800 *8*			A	

γ(^{39}Al)

E_i(level)	E_γ	I_γ	E_f	J^π_f	Comments
800	800 *8*	100	0	(5/2$^+$)	E_γ: from ^{9}Be(^{40}Si,^{39}Alγ) (2014St18).

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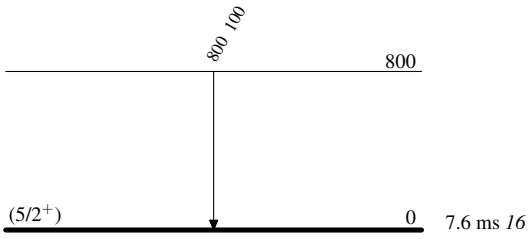
Level Scheme

Intensities: Relative photon branching from each level



$^{39}_{13}Al_{26}$