

Adopted Levels, Gammas

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Jun Chen	NDS 152, 1 (2018)	30-Sep-2017

$Q(\beta^-)=17860$ SY; $S(n)=2210$ SY; $S(p)=26750$ SY; $Q(\alpha)=-21190$ SY [2017Wa10](#)

$\Delta Q(\beta^-)=630$, $\Delta S(n)=860$, $\Delta S(p)=850$, $\Delta Q(\alpha)=720$ (syst,[2017Wa10](#)).

$S(2n)=2450$ 850, $Q(\beta^-n)=16190$ 530 (syst,[2017Wa10](#)). $S(2p)=50620$ (theoretical,[1997Mo25](#)).

^{38}Mg produced and identified by [1997Sa14](#) (also [2002LuZT](#)) in $^{181}\text{Ta}(^{48}\text{Ca},X)$ $E=70$ MeV/nucleon at RIKEN projectile fragment separator, tof. A total of 18 events reported by [1997Sa14](#).

[2007Ta15](#): ^{38}Mg produced in fragmentation of ^{48}Ca beam at 142 MeV/nucleon with ^9Be and W targets, A1900 fragment separator at NSCL facility. Measured cross section for production of ^{38}Mg .

Structure calculations: [2016Ba59](#), [2016Ro17](#), [2016Sa46](#), [2016Sh05](#), [2016Sh21](#), [2015Me06](#), [2015Wu07](#), [2014Ca21](#), [2014Pe19](#), [2014Wa03](#), [2014Wa14](#), [2013Do17](#), [2011Ya01](#), [2009No01](#). Consult NSR database for about 20 other theory references.

Theoretical calculations of $T_{1/2}$ and P_n : [2016Ma12](#), [2013Li39](#), [2003Mo09](#).

 ^{38}Mg LevelsCross Reference (XREF) Flags

A C($^{40}\text{Si},^{38}\text{Mg}$),($^{39}\text{Al},^{38}\text{Mg}$)

E(level)	J^π	XREF	Comments
0	0^+	A	$\% \beta^- = 100$; $\% \beta^- n = ?$; $\% \beta^- 2n = ?$ β^- decay mode is expected to be 100%. $T_{1/2} > 260$ s from tof in 1997Sa14 . Actual half-life is expected to be much longer as suggested by systematic value of 1 ms (2017Au03), and theoretical value of 8.7 ms (2003Mo09), 5.0 ms (2013Li39), 2.7 ms (2012Ch48), 8.8 ms (2016Ma12). Theoretical $\% \beta^- n = 71$ and $\% \beta^- 2n = 8.5$ (2003Mo09), $\% \beta^- n = 94.6$ (2013Li39), $\% \beta^- n = 71.3$ and $\% \beta^- 2n = 1.8$ (2016Ma12). Production cross sections=40 nb $l0$ with W target and 4 nb l with Be target (2007Ta15).
656 6	$(2^+)^\dagger$	A	
2016 21	$(4^+)^\dagger$	A	

† From systematics of even-even nuclei and shell-model predictions.

 $\gamma(^{38}\text{Mg})$

$E_i(\text{level})$	J_i^π	E_γ	I_γ	E_f	J_f^π
656	$(2^+)^\dagger$	656 6	100	0	0^+
2016	$(4^+)^\dagger$	1360 20	100	656	$(2^+)^\dagger$

Adopted Levels, Gammas**Level Scheme**

Intensities: Relative photon branching from each level

