$^9\text{Be}(^{30}\text{Mg},^{29}\text{Mg}\gamma)$ **2008Te02**

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	M. Shamsuzzoha Basunia	NDS 113, 909 (2012)	1-Jan-2012

Secondary beam of ^{30}Mg, E(^{30}Mg)=85.8 MeV/u, was produced following the ^{40}Ar primary beam fragmentation from the reaction ^{9}Be(^{40}Ar,X), E(^{40}Ar)=140 MeV/u, filtered using the A1900 fragment separator at NSCL; One-neutron knockout reaction; Measured Eγ, Iγ using S800 spectrograph and segmented germanium array of 18 segmented HPGe detectors. Inclusive cross section from ^{30}Mg to ^{29}Mg is determined to be 100 mb 2.

^{29}Mg Levels

E(level)†	J$^{\pi\ddagger}$	T$_{1/2}$	L#	C^{2}S	Comments
0					Population=47% 4; Cross section=47 mb 4.
54.7 8					
1096.3 10	1/2⁻,3/2⁻		1	0.19 7	Population=4.3% 15; Cross section=4.3 mb 15.
1432.3 14	5/2⁻,7/2⁻	1.4 ns 5	3	0.41 10	T$_{1/2}$: determined from the half-life vs intensity fit of the 336γ (2008Te02).
					Population=6.7% 17; Cross section=6.7 mb 17.
1643.5 9	3/2⁺,5/2⁺		2	0.46 9	Population=7.3% 15; Cross section=7.3 mb 15.
2500.0 8	3/2 to 7/2		(2,3)	0.23 9	Population=3.7% 14; Cross section=3.7 mb 15.
2615.0 8	1/2,3/2		(0,1)	0.34 7	Population=6.9% 15; Cross section=6.9 mb 15.
3231.0 7	3/2⁺,5/2⁺		2	1.39 14	Population=21.5% 22; Cross section=21.5 mb 22.
3674.2 10					Population=2.3% 10; Cross section=2.3 mb 10.

† From a least-squares fit to γ-ray energies, ΔE=1 keV assumed by the evaluator.
‡ Deduced by the evaluator based on the L value.
# From longitudinal momentum distribution.

$\gamma(^{29}\text{Mg})$

E$_\gamma$	I$_\gamma$	E$_i$(level)	J$^\pi_i$	E$_f$	J$^\pi_f$
336	6.7 17	1432.3	5/2⁻,7/2⁻	1096.3	1/2⁻,3/2⁻
1040	8.5 11	1096.3	1/2⁻,3/2⁻	54.7	
1586	1.8 10	3231.0	3/2⁺,5/2⁺	1643.5	3/2⁺,5/2⁺
1642	9.0 11	1643.5	3/2⁺,5/2⁺	0	
^{x}1790† 10	1.4 10				
2133	4.3 10	3231.0	3/2⁺,5/2⁺	1096.3	1/2⁻,3/2⁻
^{x}2230 10	3.7 10				
2445	2.7 10	2500.0	3/2 to 7/2	54.7	
2500	1.0 10	2500.0	3/2 to 7/2	0	
2560	5.9 11	2615.0	1/2,3/2	54.7	
2615	1.0 10	2615.0	1/2,3/2	0	
3178	1.5 11	3231.0	3/2⁺,5/2⁺	54.7	
3232	13.9 13	3231.0	3/2⁺,5/2⁺	0	
^{x}3410 10	1.2 10				
3674	2.3 10	3674.2		0	

† A possible placement from 3231.0 level.
^{x} γ ray not placed in level scheme.

^{9}Be(^{30}Mg,^{29}Mgγ)   2008Te02

Level Scheme

Intensities: I$_{(\gamma+ce)}$ per 100 parent decays

Legend

I$_\gamma$ < 2%×I$_\gamma^{max}$
I$_\gamma$ < 10%×I$_\gamma^{max}$
I$_\gamma$ > 10%×I$_\gamma^{max}$

$^{29}_{12}Mg_{17}$