

${}^9\text{Be}({}^{22}\text{Mg}, {}^{21}\text{Mg})$ 2008Di12

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	R. B. Firestone	NDS 127, 1 (2015)	15-Jan-2015

$E=73.8$ MeV/nucleon beam provided by the Coupled Cyclotron at NSCL. Secondary ${}^{22}\text{Mg}$ beam produced in the reaction ${}^9\text{Be}({}^{36}\text{Ar}, {}^{22}\text{Mg})$ with a beam energy of 150 MeV/nucleon. A1900 fragment separator. Detected reaction products with S800 spectrograph. Measured $E\gamma$, $I\gamma$, $\gamma\gamma$ using Segmented Germanium array of 16 HPGe detectors. Total cross section= 19.7 mb 16.

 ${}^{21}\text{Mg}$ Levels

E(level)	J^π †	C ² S	Comments
0	$5/2^+$	1.38	C ² S: Based on $1d_{5/2}$ configuration. $\sigma=10.4$ mb 18.
201 4	$1/2^+$	0.41	E(level): Deduced from difference of pairs of γ -ray energies feeding this level. C ² S: Based on $2s_{1/2}$ configuration.
1084 4	$1/2^-$	1.70	C ² S: Based on $1p_{1/2}$ configuration. $\sigma=5.5$ mb 6.
1651 4	$3/2^+$	0.10	C ² S: Based on $1d_{3/2}$ configuration. $\sigma=2.2$ mb 6.
1989 3	$3/2^-$	0.28	C ² S: Based on $1p_{3/2}$ configuration. $\sigma=1.7$ mb 3.

† Constrained by γ -ray decay patterns, consistency with mirror states in ${}^{21}\text{F}$, and WBK shell-model calculations.

 $\gamma({}^{21}\text{Mg})$

$E_i(\text{level})$	J_i^π	E_γ	I_γ	E_f	J_f^π	Comments
201	$1/2^+$	(201)		0	$5/2^+$	
1084	$1/2^-$	883.3 8	>95.4	201	$1/2^+$	
		1084 †	<4.6	0	$5/2^+$	E_γ : No γ -ray at 1084 keV was seen, only an upper limit is given.
1651	$3/2^+$	1451 4	18 7	201	$1/2^+$	
		1651 4	82 7	0	$5/2^+$	
1989	$3/2^-$	1787 4	40 8	201	$1/2^+$	
		1989 3	60 8	0	$5/2^+$	

† Placement of transition in the level scheme is uncertain.

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Legend

Level Scheme

Intensities: % photon branching from each level

-----▶ γ Decay (Uncertain)