

$^{12}\text{C}(^{23}\text{Al}, ^{22}\text{Mg}\gamma)$ **2011Ba27**

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	M. Shamsuzzoha Basunia		NDS 127, 69(2015)	1-Apr-2015

^{23}Al secondary beam, E=57 MeV/nucleon, produced from fragmentation of ^{32}S primary beam, E=95 MeV/nucleon, on a thick carbon target. Ions were identified at the focal plane of SPEG spectrometer using the energy loss in a ionization chamber and time-of-flight between a thick plastic stopping detector and the cyclotron radio frequency. The secondary beam bombarded a secondary target of carbon, thickness 175 mg/cm². 8 EXOGAM Germanium clover detectors for detecting γ -rays. Measured E_γ , γ -yields; momentum distributions using the SPEG (FWHM $\approx 5\times 10^{-3}$). Deduced levels, J, π , spectroscopic factors and asymptotic normalization coefficients (ANCs) for ^{22}Mg .

 ^{22}Mg Levels

E(level)	J^π [†]	$S^\ddagger$	Comments
0.0	0 ⁺	0.45 7	$\sigma_{-1p}=18.5$ mb 12, ANC=3896 fm ⁻¹ 113.
1247	2 ⁺	1.15 18	S: Other: <0.09 for removal of $\pi 2s_{1/2}$ proton. $\sigma_{-1p}=39.3$ mb 12, ANC=10.4 fm ⁻¹ 10.
3308	4 ⁺	0.34 6	$\sigma_{-1p}=9.5$ mb 9, ANC=5.4 fm ⁻¹ 8.
5293	(4 ⁺)	0.50 9	$\sigma_{-1p}=10.9$ mb 9, ANC=13.8 fm ⁻¹ 22. J^π : 4+ ₂ in 2011Ba27 .

[†] From Adopted Levels.

[‡] For one proton (1d_{5/2}) removal from ^{23}Al ground state.

 $\gamma(^{22}\text{Mg})$

E_γ	$E_i(\text{level})$	J_i^π	E_f	J_f^π
1247	1247	2 ⁺	0.0	0 ⁺
1985	5293	(4 ⁺)	3308	4 ⁺
2061	3308	4 ⁺	1247	2 ⁺

$^{12}\text{C}(^{23}\text{Al}, ^{22}\text{Mg}\gamma)$ 2011Ba27

Level Scheme

