

$^{12}\text{C}(^{23}\text{Al},\text{p}^{22}\text{Mg})$     [2005Go33,2011Ba27](#)

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	M. S. Basunia <sup>#</sup> , A. Chakraborty <sup>##</sup>		NDS 171, 1 (2021)	1-Jun-2020

Other references: [2005Go34](#), [2004Go34](#) – same research group and experiment of [2005Go33](#).

[2005Go33](#):  $\text{Pb}(^{23}\text{Al},\text{p}^{22}\text{Mg})$ : 50 MeV/nucleon secondary  $^{23}\text{Al}$  beam produced by 135 MeV/nucleon  $^{28}\text{Si}$  beam on a  $^9\text{Be}$  target. Si E- $\Delta\text{E}$ , plastic scintillator hodoscope, NaI(Tl) array.

[2011Ba27](#):  $^{12}\text{C}(^{23}\text{Al},\text{p}^{22}\text{Mg})$ : E=57 MeV/nucleon  $^{23}\text{Ar}$  beam produced from fragmentation of an intense ( $\approx 2\mu\text{A}$ )  $^{32}\text{S}^{16+}$  beam at 95 MeV/nucleon on a thick carbon target at the GANIL coupled cyclotron facility. The secondary ion beams were collected using the SISSI device. Secondary target of a 175 mg/cm<sup>2</sup> thick carbon. 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. Momentum distributions using the SPEG (FWHM $\approx 5\times 10^{-3}$ ). Deduced ground state structure of  $^{23}\text{Al}$ .

 $^{23}\text{Al}$  Levels

E(level)	$J^\pi$	L	Comments
0.0	$5/2^+$		$J^\pi$ : Proposed in <a href="#">2011Ba27</a> , based on experimental exclusive momentum distributions. Configuration= $1d_{5/2}$ .
550 20		2	E(level): From Adopted Levels. In <a href="#">2005Go33</a> : 400 keV (in relative energy scale – Fig 2.). L: From <a href="#">2005Go33</a> , from comparison of measured angular distribution of differential cross section, $d\sigma/d\Omega$ [mb/sr], and DWBA calculations. $\Gamma\gamma=7.2\times 10^{-7}$ eV 14: Deduced in <a href="#">2005Go33</a> assuming spins and parities of the g.s. and 1st excited states are $5/2^+$ and $1/2^+$ , respectively.