

$^9\text{Be}(^{25}\text{Al}, ^{23}\text{Al}\gamma)$  **2020Lo05**

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

Two neutron knockout reaction.

Secondary cocktail beam composed of 54.5%  $^{24}\text{Mg}$ , 29.5%  $^{25}\text{Al}$ , and 13.5%  $^{26}\text{Si}$  was produced in reaction  $^9\text{Be}(^{36}\text{Ar}, \text{X})$  at E=150

MeV/nucleon. A1900 fragment separator. Two-neutron knockout reaction of  $^{25}\text{Al}$  was induced on another  $^9\text{Be}$  target in front of the S800 spectrograph, E=102 MeV/nucleon (mid target). Detected  $\gamma$  rays using 192-element Cs-I scintillator array CAESAR.

Measured parallel momentum distribution of states populated in  $^{23}\text{Al}$  by gating on  $\gamma$ -ray transition.

Inclusive cross section of 0.69 mb  $^9$  was measured for the two-neutron knockout reaction for g.s. and  $7/2^+$  state at 1622.

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

E(level)	$J^\pi$ <sup>†</sup>	Comments
0.0	$5/2^+$	Partial cross section $\sigma = 0.60$ mb $^8$ . Comparison of measured momentum distribution with predictions by sd-shell model shows neutron coupling with a predicted dominance of I (defined as the total angular momentum of two removed neutrons) =0.
1622 $6$	$(7/2^+)$	E(level): from $E\gamma$ . Partial cross section $\sigma = 0.09$ mb $^3$ . Comparison of measured momentum distribution with predictions by sd-shell model shows neutron coupling with a predicted dominance of angular momentum $l=4$ larger than $l=2$ component by about a factor of 2. See the definition of I above in the g.s. comments.

<sup>†</sup> From Adopted Levels.

 $\gamma(^{23}\text{Al})$ 

$E_\gamma$	$E_i(\text{level})$	$J_i^\pi$	$E_f$	$J_f^\pi$
1622 $6$	1622	$(7/2^+)$	0.0	$5/2^+$

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Level Scheme

