

$\text{C}(^{40}\text{Al}, ^{36}\text{Mg}\gamma), ^1\text{H}(^{40}\text{Al}, ^{36}\text{Mg})$  2019Cr02

Type	History		Literature Cutoff Date
	Author	Citation	
Full Evaluation	Balraj Singh	ENSDF	21-May-2021

1p1n-knockout reaction.

2019Cr02:  $^{40}\text{Al}$  secondary beam was produced in  $^9\text{Be}(^{48}\text{Ca}, X)$ ,  $E=345$  MeV/nucleon primary reaction at RIBF-RIKEN facility.

Rotating  $^9\text{Be}$  target was  $2.8$  mg/cm<sup>2</sup> thick. Projectile-like secondary fragments were selected using  $B\rho$ - $\Delta E$ - $B\rho$  method through the BigRIPS fragment separator. Cocktail beam (consisting of  $^{41}\text{Al}$  and  $^{40}\text{Al}$ ) was incident on  $3.82$  g/cm<sup>2</sup> thick polyethylene ((C<sub>2</sub>H<sub>4</sub>)<sub>n</sub>) target placed at the focal point of the ZeroDegree spectrometer (ZDS). Outgoing particles were identified in A/Q and Z through event-by-event analysis by the  $B\rho$ - $\Delta E$ -TOF method using the ZDS spectrometer, and  $\gamma$  rays were detected using DALI2 array of 186 NaI(Tl) detectors. Measured  $E_\gamma$ ,  $I_\gamma$ ,  $\gamma$  rays in coincidence with incoming  $^{40}\text{Al}$  beam particles and  $^{36}\text{Mg}$  outgoing particles. Deduced level and  $J^\pi$  in  $^{36}\text{Mg}$ . Comparison with shell-model calculations.

 $^{36}\text{Mg}$  Levels

<u>E(level)</u>	<u><math>J^\pi</math></u>
0	0 <sup>+</sup>
659 6	2 <sup>+</sup>
1978 22	4 <sup>+</sup>

 $\gamma(^{36}\text{Mg})$ 

<u><math>E_\gamma</math></u>	<u><math>E_i(\text{level})</math></u>	<u><math>J_i^\pi</math></u>	<u><math>E_f</math></u>	<u><math>J_f^\pi</math></u>
659 6	659	2 <sup>+</sup>	0	0 <sup>+</sup>
1319 21	1978	4 <sup>+</sup>	659	2 <sup>+</sup>

 $\text{C}(^{40}\text{Al}, ^{36}\text{Mg}\gamma), ^1\text{H}(^{40}\text{Al}, ^{36}\text{Mg})$  2019Cr02Level Scheme