

$^9\text{Be}(\text{HI}, ^{50}\text{Ar}\gamma)$  2015St10

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	Jun Chen and Balraj Singh		NDS 157, 1 (2019)	15-Apr-2019

**2015St10:**  $\text{HI} = ^{54}\text{Ca}$ ,  $^{55}\text{Sc}$  and  $^{56}\text{Ti}$  beams of energy  $\approx 220$  MeV/nucleon produced in the fragmentation of 345 MeV/nucleon  $^{70}\text{Zn}$  beam. The beam particles were identified by the BigRIPS spectrometer on the basis of  $B\rho$ - $\Delta E$ -TOF measurements. The reaction products were analyzed using the same Zero Degree Spectrometer (ZDS), again on the basis  $B\rho$ - $\Delta E$ -TOF selection. Measured ( $^{50}\text{Ar}\gamma$ )-coin using DALI2 array of 186 NaI(Tl) detectors. Experiments performed at RIBF-RIKEN facility. Due to low statistics,  $\gamma\gamma$ -coin measurements could not be performed. Deduced first  $2^+$  level, tentative  $4^+$  level, and N=32 subshell gap. Comparison with shell-model calculations with *sdpf* model space and SDPF- $\mu$  interaction.

 $^{50}\text{Ar}$  Levels

E(level) <sup>†</sup>	$J^\pi$ <sup>‡</sup>	Comments
0	$0^+$	
1178 18	$(2^+)$	
2760? 42	$(4^+)$	$J^\pi$ : from shell-model predictions, but a $2^+$ state is also predicted near this energy (2015St10), thus $2^+$ is also possible.

<sup>†</sup> From  $E_\gamma$  values.

<sup>‡</sup> From systematics of even-even nuclei and shell-model predictions.

 $\gamma(^{50}\text{Ar})$ 

$E_\gamma$	$E_i(\text{level})$	$J_i^\pi$	$E_f$	$J_f^\pi$
1178 18	1178	$(2^+)$	0	$0^+$
1582 <sup>†</sup> 38	2760?	$(4^+)$	1178	$(2^+)$

<sup>†</sup> Placement of transition in the level scheme is uncertain.

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Legend

Level Scheme-----►  $\gamma$  Decay (Uncertain)