

$^9\text{Be}(^{48}\text{K}, ^{47}\text{Ar}\gamma)$  2016Ga14

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	S. Ota and E. A. Mccutchan		NDS 203,1 (2025)	1-Apr-2025

Data from 2016Ga14 includes  $^{12}\text{C}(^{46}\text{Ar}, ^{47}\text{Ar}\gamma)$ , one-neutron pickup reaction. See that dataset for additional details.

2016Ga14:  $E(^{48}\text{K})=87.5$  MeV/nucleon beam produced in  $^9\text{Be}(^{48}\text{Ca}, \text{X})$ ,  $E=140$  MeV/nucleon primary reaction, using A1900 fragment separator at NSCL-MSU facility. Reaction target= $376$  mg/cm<sup>2</sup>  $^9\text{Be}$ . Recoil products were identified using S800 spectrograph based on  $\Delta E$  and time-of-flight measurements. Measured recoil- $\gamma$ ,  $E\gamma$ ,  $I\gamma$ ,  $\gamma\gamma$ -coin using SEGA array of 32-fold segmented HPGe detectors.

 $^{47}\text{Ar}$  Levels

Experimental partial  $\sigma$  values read by evaluator from Fig. 5a of 2016Ga14.

E(level) <sup>†</sup>	J $\pi$ <sup>‡</sup>	Comments
0	3/2 <sup>-</sup>	Measured partial cross section= $2.6$ mb 5. Inclusive $\sigma=5.4$ mb 3 for one-proton removal, derived from yield of $^{47}\text{Ar}$ reaction products and number of incoming $^{48}\text{K}$ projectiles, 5% systematic uncertainty has been added in quadrature.
1230 4	5/2 <sup>-</sup>	Measured partial cross section= $1.9$ mb 5.
1745 5	7/2 <sup>-</sup>	Measured partial cross section= $0.4$ mb 1.
2186 6	3/2 <sup>-</sup>	Measured partial cross section= $0.5$ mb 1.
2763 9	5/2 <sup>-</sup>	E(level): this level not shown as populated in Fig. 3b of 2016Ga14.

<sup>†</sup> Deduced by evaluators from least-squares fit to  $E\gamma$ .

<sup>‡</sup> From 2016Ga14, based on previous assignments and comparisons with shell-model calculations.

 $\gamma(^{47}\text{Ar})$ 

$E_\gamma$ <sup>†</sup>	$E_i(\text{level})$	$J_i^\pi$	$E_f$	$J_f^\pi$	Comments
516 5	1745	7/2 <sup>-</sup>	1230	5/2 <sup>-</sup>	$E_\gamma$ : 515 in level-scheme Fig. 3b of 2016Ga14.
955 6	2186	3/2 <sup>-</sup>	1230	5/2 <sup>-</sup>	$E_\gamma$ : 956 in level-scheme Fig. 3b of 2016Ga14.
1018 7	2763	5/2 <sup>-</sup>	1745	7/2 <sup>-</sup>	This $\gamma$ from spectrum Fig. 2 of 2016Ga14, not shown in authors' Fig. 3b.
1229 5	1230	5/2 <sup>-</sup>	0	3/2 <sup>-</sup>	$E_\gamma$ : 1231 in level-scheme Fig. 3b of 2016Ga14.
1745 6	1745	7/2 <sup>-</sup>	0	3/2 <sup>-</sup>	
2188 8	2186	3/2 <sup>-</sup>	0	3/2 <sup>-</sup>	

<sup>†</sup> From spectral figure in Fig. 2b in 2016Ga14.

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Level Scheme

