## $^{12}C(^{46}Ar,^{47}Ar\gamma)$ 2016Ga14

History

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

Data from 2016Ga14 includes $^{9}Be(^{48}K,^{47}Ar\gamma)$, one-proton removal reaction. See that dataset for additional details.
2016Ga14: E($^{46}$Ar)=67 MeV/nucleon beam produced in $^{9}Be(^{48}Ca,X)$, E=140 MeV/nucleon primary reaction, using A1900 fragment separator at NSCL-MSU facility. Reaction target=149 mg/cm$^2$ glassy carbon. Recoil products were identified using S800 spectrograph based on ΔE and time-of-flight measurements. Measured recoil-$\gamma$ E$\gamma$, I$\gamma$, $\gamma\gamma$-coin using the GRETINA array of 36-fold segmented HPGe detectors.

### $^{47}$Ar Levels

Experimental partial $\sigma$ values read by evaluator from Fig. 4a of 2016Ga14.

| E(level)† | J$^\pi$‡ | Comments |
|---|---|---|
| 0 | 3/2$^-$ | Inclusive and ground-state $\sigma\leq$0.48 mb *3* for one-neutron pickup reaction (2016Ga14). Only an upper limit is given by the authors since presence of tail of unreacted $^{46}$Ar projectiles did not allow for clean particle identification. |
| 1231 *4* | 5/2$^-$ | Measured partial cross section=0.05 mb *1*. |
| 1745 *4* | 7/2$^-$ | Measured partial cross section=0.07 mb *1*. |
| 2761 *4* | 5/2$^-$ | Measured partial cross section=0.06 mb *1*. |
| 3437 *5* | 5/2$^-$ | Measured partial cross section=0.16 mb *2*. |

† Deduced by evaluators from least-squares fit to E$\gamma$.
‡ From 2016Ga14, based on previous assignments and comparisons with shell-model calculations.

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

| E$_\gamma$† | E$_i$(level) | J$_i^\pi$ | E$_f$ | J$_f^\pi$ | Comments |
|---|---|---|---|---|---|
| 515 *3* | 1745 | 7/2$^-$ | 1231 | 5/2$^-$ | |
| 1017 *4* | 2761 | 5/2$^-$ | 1745 | 7/2$^-$ | |
| 1231 *4* | 1231 | 5/2$^-$ | 0 | 3/2$^-$ | |
| 1530 *4* | 2761 | 5/2$^-$ | 1231 | 5/2$^-$ | |
| 1692 *5* | 3437 | 5/2$^-$ | 1745 | 7/2$^-$ | E$_\gamma$: 1693 in level-scheme Fig. 3a of 2016Ga14. |
| 1744 *5* | 1745 | 7/2$^-$ | 0 | 3/2$^-$ | E$_\gamma$: 1745 in level-scheme Fig. 3a of 2016Ga14. |
| 3438 *7* | 3437 | 5/2$^-$ | 0 | 3/2$^-$ | |

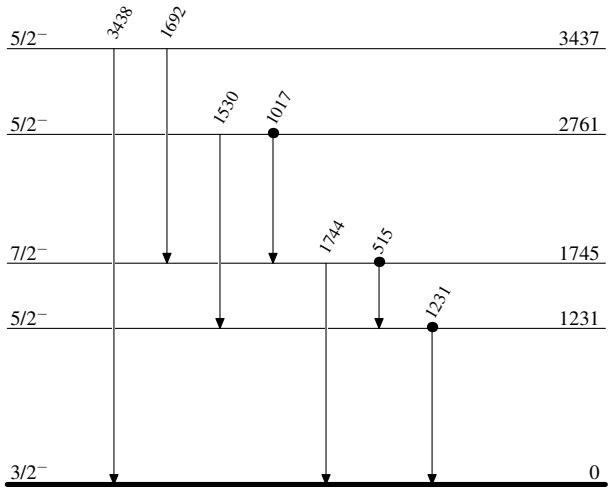
† From spectral figure in Fig. 2a in 2016Ga14.

Legend

## $^{12}C(^{46}Ar,^{47}Ar\gamma)$ **2016Ga14**

Level Scheme

● Coincidence




$^{47}_{18}Ar_{29}$