

$^9\text{Be}(^{48}\text{Ca},\text{X}\gamma)$  2002So14,2002Az02,2002Gu08

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| Full Evaluation | Jun Chen <sup>#</sup> and Balraj Singh |         | NDS 135, 1 (2016) | 31-May-2016            |

2002So14,2002Az02,2002Az01,2002Gu08: E=60 MeV/nucleon  $^{48}\text{Ca}$  beam was produced at GANIL. A 2.77 mg/cm<sup>2</sup> Be target. Fragments were analyzed with the SPEG spectrometer and  $\gamma$ -rays were detected by an array 25% efficiency at 1.33 MeV) of 74 BaF<sub>2</sub> crystals (FWHM=200 keV at 1 MeV, 500 keV at 3 MeV) and three segmented Ge clover detectors (0.12 % efficiency at 1.3 MeV, FWHM=30 keV at 1.3 MeV). Measured  $E\gamma$ ,  $I\gamma$ ,  $\gamma(\theta)$ ,  $\gamma\gamma$ -coin. Deduced levels,  $J^\pi$ , branchings. Comparison with shell-model calculations.

 $^{42}\text{S}$  Levels

| E(level) <sup>†</sup> | $J^\pi$                        | Comments                       |
|-----------------------|--------------------------------|--------------------------------|
| 0                     | 0 <sup>+</sup>                 |                                |
| 904 5                 | 2 <sup>+</sup>                 | $J^\pi$ : from Adopted Levels. |
| 2725 10               | (4 <sup>+</sup> ) <sup>‡</sup> |                                |
| 2779 11               | (2 <sup>+</sup> ) <sup>‡</sup> |                                |
| 4245 13               |                                |                                |

<sup>†</sup> From least-squares fit to  $E\gamma$  data.

<sup>‡</sup>  $\Delta J=2$  quadrupole or  $\Delta J=0$ , dipole from  $\gamma(\theta)$  for 1821+1875 summed peak, and systematic of neighboring nuclides.

 $\gamma(^{42}\text{S})$ 

| $E_\gamma$ | $I_\gamma$ | $E_i(\text{level})$ | $J_i^\pi$         | $E_f$ | $J_f^\pi$         |
|------------|------------|---------------------|-------------------|-------|-------------------|
| 904 5      | 100        | 904                 | 2 <sup>+</sup>    | 0     | 0 <sup>+</sup>    |
| 1466 8     | 30         | 4245                |                   | 2779  | (2 <sup>+</sup> ) |
| 1821 8     | 70         | 2725                | (4 <sup>+</sup> ) | 904   | 2 <sup>+</sup>    |
| 1875 9     | 30         | 2779                | (2 <sup>+</sup> ) | 904   | 2 <sup>+</sup>    |

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