## $^{39}$K(d,$\alpha$) 1966Mc13,1968Na07

History

| Type | Author | Citation | Literature Cutoff Date |
|---|---|---|---|
| Full Evaluation | John Cameron, Jun Chen and Balraj Singh, Ninel Nica | NDS 113, 365 (2012) | 15-Jan-2012 |

$J^\pi(^{39}K)=3/2^+$.

1966Mc13: E=10, 11 MeV, natural target; used double-focusing magnetic spectrometer and solid-state detectors, and measured $\sigma(\theta)$.

1968Na07,1969Bo30: E=4.55-5.32 MeV; used surface barrier detectors and measured yields At four lab angles. Deduced average $d\sigma/d\Omega$ and J values from fluctuation analysis (Ericson theory) and Hauser-Feshbach theory.

1976Ba56: E=1.83-2.53 MeV; used semiconductor detectors and measured excitation functions. Deduced J values from fluctuation analysis.

### $^{37}$Ar Levels

Given In comments are the relative intensities ($I_{rel}$) At deuteron energy E=10 MeV, $\theta$=30° for $E_{level}$<4800, and respectively E=11 MeV, $\theta$=20° for $E_{level}$>4800 (by evaluators from figs. 1 and 4 of 1966Mc13).

| E(level)† | $J^\pi$ | Relative yield | Comments |
|---|---|---|---|
| 0 | (3/2) | 13 | $J^\pi$: (3/2) (1968Na07), (3/2) (1976Ba56). |
| 1408 *16* | (1/2) | 15 | $J^\pi$: (1/2) (1968Na07). |
| 1617 *16* | | 4 | $J^\pi$: (5/2) (1968Na07). |
| 2217 *16* | (5/2,7/2) | 8 | $J^\pi$: (5/2,7/2) (1968Na07), (3/2) (1976Ba56). |
| 2498 *16* | (3/2) | 3 | $J^\pi$: (3/2) (1968Na07); (3/2) (1976Ba56). |
| 2797 *16* | (5/2) | 45 | $J^\pi$: (5/2) (1968Na07), (5/2) (1976Ba56). |
| 3173 *16* | | 20 | |
| 3273 *16* | | 3 | |
| 3525 *16* | | 6 | |
| 3614 *16* | | 30 | |
| 3711 *16* | | 12 | |
| 3751?‡ *16* | | 7 | |
| 3900?‡ *16* | | | |
| 3937 *16* | | 7 | |
| 3990 *20* | | | reported only by 1968Na07. |
| 4020 *16* | | 8 | |
| 4215?‡ *16* | | 9 | |
| 4282 *16* | | 7 | |
| 4320 *16* | | 4 | |
| 4402 *16* | | 12 | |
| 4451 *16* | | 17 | |
| 4582 *16* | | 5 | |
| 4634 *16* | | 20 | |
| 4750 *16* | | 24 | |
| 4894 *16* | | 5 | |
| 4991 *16* | | 4 | |
| 5055 *16* | | 9 | |
| 5110 *16* | | 9 | |
| 5140?‡ *16* | | 27 | |
| 5221 *16* | | 18 | |
| 5354 *16* | | 14 | |
| 5417 *16* | | 10 | |
| 5460 *16* | | 12 | |

† From 1966Mc13, unless noted otherwise.
‡ Not found In other reactions.