## $^{56}$Fe($\alpha$,d)    1993Yu07,1980Ok03

### History

| Type | Author | Citation | Literature Cutoff Date |
|------|--------|----------|------------------------|
| Full Evaluation | C. D. Nesaraja and B. Singh | ENSDF | 31-Oct-2015 |

1993Yu07: E$\alpha$=35 MeV, FWHM=29 keV; measured $\sigma$(E(d),$\theta$), $\theta$(lab)= 15°−75°, in steps of 5° or 10°. Microscopic DWBA analysis.

1980Ok03: E$\alpha$=23.9 MeV, FWHM≈80 keV; measured $\sigma$(E, $\theta$); DWBA analysis.

Others:

1994Fi01: E$\alpha$≈55 MeV, FWHM=120 keV; measured $\sigma$(E(d),$\theta$), $\theta$(lab)=15°−25°, in 2.5° steps, $\theta$(lab)=30°−70°, in 5° steps. DWBA analysis.

1994Vo01: gives a theoretical discussion of the data in 1994Fi01.

1969Lu07 (also 1968LuZY): E$\alpha$=50 MeV, FWHM=170 keV; measured $\sigma$(E,$\theta$).

### $^{58}$Co Levels

| E(level)[†] | J$^{\pi}$[@] | L[#] | Comments |
|-------------|-----------|------|----------|
| (0) | | | |
| 24[‡] | (5)$^+$ | 4 | |
| 374[‡] | (5)$^+$ | 4 | |
| 880 | | | |
| 1075[‡] | | 6 | |
| 1450 | | | |
| 1620 | | | |
| 1740 | | | |
| 1870 | | | |
| 1980 | | | |
| 2260 | | | |
| 2720 | | 6 | |
| 2840 | | | |
| 3100 | | | |
| 3320 | | | |
| 3400[‡] | | 4 | |
| 3750 _30_ | 6$^-$&8$^-$ | 7 | E(level): from 1980Ok03. |
| | | | J$^{\pi}$: a doublet with (f$_{7/2}$,g$_{9/2}$)$_{8-}$+(p$_{3/2}$,g$_{9/2}$)$_{6-}$ configuration according to the analysis of 1994Fi01 for a level at 3720 who observe an enlarged line width. A single level with a (f$_{7/2}$,g$_{9/2}$)$_{8-}$ configuration is deduced by 1993Yu07 who determine L=7 giving 6$^-$,7$^-$,or 8$^-$, but assign $J^{\pi}$=8$^-$ based on an expectation that the maximum coupling should dominate. |
| 3930 | | | |
| 4350 | | | |
| 4650 | | | J$^{\pi}$: 1994Fi01 assign a (g$_{9/2}$,p$_{3/2}$)$_{6-}$ configuration to this level; and 1993Yu07 assign (f$_{5/2}$,f$_{5/2}$)$_{5-}$. |
| 6400 | (1)$^+$ | 0 | E(level): from 1969Lu07 and 1993Yu07. |
| 6790 _30_ | (9)$^+$ | 8 | E(level): from 1969Lu07. |

[†] From 1980Ok03, unless indicated otherwise.
[‡] From 1993Yu07.
[#] From 1993Yu07.
[@] From DWBA analysis of 1993Yu07.