<u>$^{238}\text{U}(^{48}\text{Ca},X\gamma)$</u>    **2008Fo01**

History

| Type | Author | Citation | Literature Cutoff Date |
|------|--------|----------|------------------------|
| Full Evaluation | Yang Dong, Huo Junde | NDS 128, 185 (2015) | 10-Jul-2015 |

Two experiments performed, each with E($^{48}$Ca)=330 MeV. One used ATLAS accelerator at Argonne, and GAMMASPHERE array
of 101 Compton-suppressed HPGe detectors. Second experiment performed at Legnaro using ALPI accelerator, PRISMA magnetic
spectrometer and CLARA array of 24 Compton-suppressed HPGe detectors. Measured E$\gamma$, I$\gamma$, $\gamma\gamma$ coin. Comparisons with
shell-model calculations.

<u>$^{52}\text{Sc}$ Levels</u>

| E(level)[†] | J$^\pi$[#] | Comments |
|-------------|-----------|----------|
| 0[‡] | (3$^+$) | |
| 0+x[‡] | (4$^+$) | E(level): x<60 keV (2008Fo01). Shell-model calculations predict lowest states within 32 keV. |
| 212.0+x[‡] *2* | (5$^+$) | |
| 2332.0+x *3* | (6$^+$) | Configuration=$\pi f_{7/2} \otimes \nu[(p^2_{3/2})(p_{1/2})]$. |
| 3603.1+x *4* | (8$^+$) | Configuration=$\pi f_{7/2} \otimes \nu[(p^2_{3/2})(f_{5/2})]$. |
| 3954.1+x *6* | (7$^-$) | |
| 4345.1+x *6* | (8$^-$) | |
| 5696.1+x *9* | | |

† From least-squares fit to E$\gamma'$s.
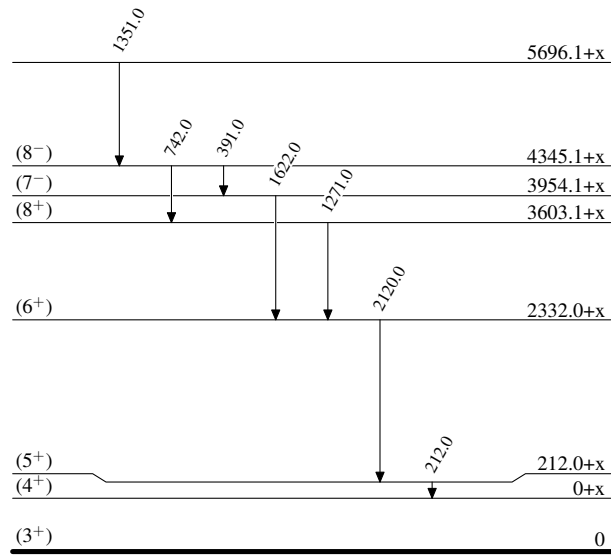‡ Member of configuration=$\pi f_{7/2} \otimes \nu p^{-1}_{3/2}$.
# Based on comparison with model calculations and similarties with features in neighboring nuclei for proton states.

<u>$\gamma(^{52}\text{Sc})$</u>

$\Delta$E: 0.2 keV for three $\gamma$ rays of 212, 1271 and 2120 keV, 0.6 keV for all the others.

| E$_\gamma$ | E$_i$(level) | J$^\pi_i$ | E$_f$ | J$^\pi_f$ |
|------------|--------------|-----------|-------|-----------|
| 212.0 *2* | 212.0+x | (5$^+$) | 0+x | (4$^+$) |
| 391.0 *6* | 4345.1+x | (8$^-$) | 3954.1+x | (7$^-$) |
| 742.0 *6* | 4345.1+x | (8$^-$) | 3603.1+x | (8$^+$) |
| 1271.0 *2* | 3603.1+x | (8$^+$) | 2332.0+x | (6$^+$) |
| 1351.0 *6* | 5696.1+x | | 4345.1+x | (8$^-$) |
| 1622.0 *6* | 3954.1+x | (7$^-$) | 2332.0+x | (6$^+$) |
| 2120.0 *2* | 2332.0+x | (6$^+$) | 212.0+x | (5$^+$) |

† 0.2 keV for three $\gamma$ rays of 212, 1271 and 2120 keV, 0.6 keV for all the others.

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### Level Scheme



${}^{52}_{21}$Sc$_{31}$