^{238}U(^{48}Ca,Xγ) 2008Fo01

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Wang Jimin and Huang Xiaolong	NDS 144, 1 (2017)	1-Mar-2016

2008Fo01: 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 Eγ, Iγ, $\gamma\gamma$ coin.

^{51}Ca Levels

E(level)‡	J$^\pi$†	Comments
0	$3/2^{(-)}$	$p_{3/2}$ orbital.
2378.06 *20*	$(5/2^-)$	Configuration=$\nu p^2_{3/2}\otimes\nu p_{1/2}$.
3462.12 *20*	$(7/2^-)$	Configuration=$\nu p^4_{3/2}\otimes\nu f^{-1}_{7/2}$.
3844.1 *3*	$(7/2^+)$	Configuration=$\pi[(f_{7/2})(s^{-1}_{1/2})]\otimes\nu p^{-1}_{3/2}$.
4155.1 *5*	$(9/2^+)$	Configuration=$\pi[(f_{7/2})(s^{-1}_{1/2})]\otimes\nu p^{-1}_{3/2}$.
4320.1 *4*	$(9/2^-)$	Configuration=$\nu p^2_{3/2}\otimes\nu f_{5/2}$.

† As proposed in 2008Fo01 based on comparisons of γ-decays with shell-model calculations.
‡ From a least-squares fit to Eγ's.

γ(^{51}Ca)

E$_\gamma$†	E$_i$(level)	J$^\pi_i$	E$_f$	J$^\pi_f$
311.0 *6*	4155.1	$(9/2^+)$	3844.1	$(7/2^+)$
476.0 *4*	4320.1	$(9/2^-)$	3844.1	$(7/2^+)$
693.0‡ *6*	4155.1	$(9/2^+)$	3462.12	$(7/2^-)$
1466.0 *2*	3844.1	$(7/2^+)$	2378.06	$(5/2^-)$
1942.0 *4*	4320.1	$(9/2^-)$	2378.06	$(5/2^-)$
2378.0 *2*	2378.06	$(5/2^-)$	0	$3/2^{(-)}$
3462.0 *2*	3462.12	$(7/2^-)$	0	$3/2^{(-)}$

† 2008Fo01 quote uncertainty of 0.2 keV for strong γ rays and up to 0.6 keV for others. The evaluators assign 0.2 keV for 1466, 2378 and 3462-keV γ rays; 0.4 keV for 476 and 1942-keV γ rays and 0.6 keV 311 and 693-keV γ rays.
‡ Placement of transition in the level scheme is uncertain.

Legend

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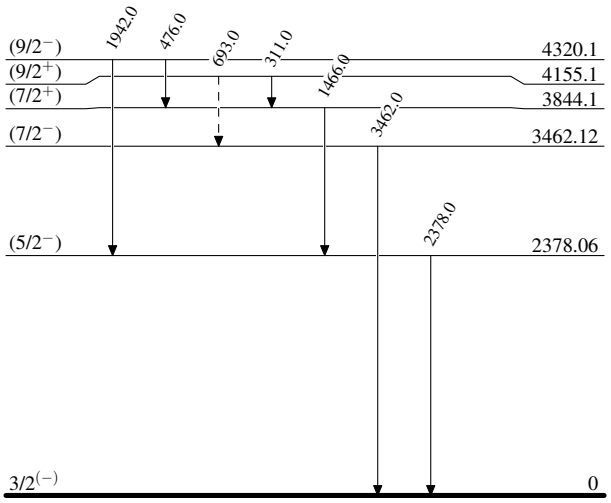
Level Scheme

γ Decay (Uncertain)



$^{51}_{20}Ca_{31}$