

$^{70}\text{Zn}(^{238}\text{U},\text{X}\gamma)$ 2015Ce03

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh and Jun Chen	NDS 188,1 (2023)	17-Jan-2023

Deep inelastic reaction.

2015Ce03: $E(^{238}\text{U})=6.76$ MeV/nucleon incident on an $800 \mu\text{g}/\text{cm}^2$ thick target of ^{70}Zn deposited on a $550 \mu\text{g}/\text{cm}^2$ thick Mg backing. ^{71}Zn ions were identified event-by-event using a VAMOS spectrometer at GANIL facility. Measured $E\gamma$, $I\gamma$, $\gamma\gamma$ -coin, level lifetimes by RDDS technique using Cologne plunger device and EXOGAM array of Ge detectors. Deduced levels, J^π , B(M1). Comparison with shell-model calculations.

The level scheme could not be completed in this experiment. The one given in 2015Ce03 is essentially the same as in 2011Ab01 evaluation.

^{71}Zn Levels

E(level) [†]	J^π [‡]	$T_{1/2}$ [#]	Comments
0.0	$1/2^-$		
468.4 8	$5/2^-$	≥ 20 ps	
490.4? 5	$3/2^-, 1/2^-$	5.1 ps 14	J^π : $3/2^-$ preferred (2015Ce03) from comparison of experimental B(M1)(W.u.) and shell model calculations, but authors caution that this argument cannot be used to assign J^π of this level.
674.3? 8	$(3/2)^-$	≤ 0.42 ps	
1259.2? 17	$(5/2)^+$		
1853.7? 17	$(3/2^+, 5/2^+)$		

[†] From $E\gamma$ data.

[‡] Assignments taken by 2015Ce03 from 2011Ab01 evaluation; same as in the present Adopted Levels.

[#] From recoil-distance Doppler-shift method using a plunger device, and differential decay-curve analysis (2015Ce03).

$\gamma(^{71}\text{Zn})$

E_γ	$E_i(\text{level})$	J_i^π	E_f	J_f^π	Mult.	Comments
468.4 8	468.4	$5/2^-$	0.0	$1/2^-$	[E2]	B(E2)(W.u.) ≤ 72 (2015Ce03)
490.4 5	490.4?	$3/2^-, 1/2^-$	0.0	$1/2^-$	[M1]	B(M1)(W.u.)=0.036 10 (2015Ce03)
^x 556.3 8						
^x 565.2 7						
584.9 15	1259.2?	$(5/2)^+$	674.3?	$(3/2)^-$		
594.5 4	1853.7?	$(3/2^+, 5/2^+)$	1259.2?	$(5/2)^+$		
674.3 8	674.3?	$(3/2)^-$	0.0	$1/2^-$	[M1]	B(M1)(W.u.) ≥ 0.17 (2015Ce03)
^x 795.1 8						
^x 975.9 7						
^x 990.6 11						
^x 1088.0 16						
^x 1194.8 9						

^x γ ray not placed in level scheme.

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Level Scheme

