

$^{64}\text{Ni}(^{238}\text{U}, \text{X}\gamma)$  **2017KI01**

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh, Huang Xiaolong, and Wang Xianghan		NDS 204,1 (2025)	30-Jun-2023

Multinucleon transfer reactions.

**2017KI01**:  $E(^{238}\text{U})=6.5$  MeV/nucleon, target= $1.25$  mg/cm<sup>2</sup> thick  $^{64}\text{Ni}$ . Measured  $\Delta E$ - $E$  energy spectrum for target-like reaction products, mass-over-charge ratio of the ions from tof,  $E\gamma$ ,  $I\gamma$ , (recoil ions) $\gamma$ -coin, level lifetimes by recoil distance Doppler shift (RDDS) method using Orsay universal plunger system (OUPS). Particles were detected using large-acceptance variable mode spectrometer VAMOS++. The Gamma rays were detected using AGATA array of 19 HPGe crystals at GANIL facility. Deduced levels, B(E2). Comparison with large-scale shell-model calculations, and with beyond-mean-field CHFB+5DCH calculations using Gogny D1S interaction. **2011Di04** conference report is from the same group.

Levels,  $J^\pi$ , and gamma rays shown according to the  $\gamma$ -spectrum shown in Fig. 3 of **2017KI01**.

 $^{62}\text{Fe}$  Levels

E(level)	$J^\pi$	$T_{1/2}$	Comments
0.0	$0^+$		
877.3	$2^+$		
2176.5	$4^+$	0.60 ps 17	$T_{1/2}$ : measured mean lifetime $\tau=0.86$ ps 25 using RDDS method ( <b>2017KI01</b> ). <b>2017KI01</b> state that 27% of the intensity of the $4^+$ state is fed from the $6^+$ state with an effective mean lifetime of 9.5 ps 24, 25% via $5^-$ state with an effective mean lifetime of 58 ps 50, and 14% through undetected transitions with an effective mean lifetime of 75 ps 75. <b>2017KI01</b> used their measured mean lifetime $\tau=1.537$ ps 76(stat) 150(syst) for the first $2^+$ state in $^{64}\text{Ni}$ to constrain the offset parameter for the distance.
3015.7	$5^-$		
3387.8	$6^+$		

 $\gamma(^{62}\text{Fe})$ 

$E_\gamma^\dagger$	$E_i(\text{level})$	$J_i^\pi$	$E_f$	$J_f^\pi$	Mult.	Comments
839.3	3015.7	$5^-$	2176.5	$4^+$		
877.3	877.3	$2^+$	0.0	$0^+$		
1211.3	3387.8	$6^+$	2176.5	$4^+$		
1299.2	2176.5	$4^+$	877.3	$2^+$	[E2]	B(E2) $\downarrow=0.0256 +105-58$ ( <b>2017KI01</b> )

$^\dagger$  Rounded values from the Adopted Gammas.

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Level Scheme

