

$^9\text{Be}(^{238}\text{U},\text{F}\gamma)$ 2017Gu08

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh and Jun Chen		NDS 194,460 (2024)	31-Oct-2022

2017Gu08 (also 2014YoZZ): E=345 MeV/nucleon ^{238}U was produced from the RIBF-RIKEN facility. The identification of ions of interest was made in the BigRIPS separator by determining the atomic number and the mass-to-charge ratio of the ion using the tof-B ρ - ΔE method. The reaction products were transported through the ZeroDegree Spectrometer and implanted into the beta-counting system WAS3ABi surrounded by EURICA array of 84 HPGe detectors (12 cluster modules), and 18 LaBr₃(Ce) detectors for fast-timing measurements. Measured (implanted ions) γ correlations, E γ , I γ , $\gamma\gamma$ -coin, T_{1/2} of an isomer.

^{165}Tb Levels

E(level) [†]	J π [‡]	T _{1/2}	Comments
0	(3/2 ⁺)		Configuration= $\pi 3/2[411]$ (2017Gu08); systematics of Z=65 deformed odd-A nuclei.
55 4	(5/2 ⁺)		Configuration= $\pi 5/2[413]$ (2017Gu08).
131 5	(7/2 ⁺)		
207 5	(7/2 ⁻)	0.81 μs 8	%IT=100 Configuration= $\pi 7/2[523]$ (2017Gu08). T _{1/2} : half-life for hydrogen-like ion from 2017Gu08 (ion- γ correlated decay curves: weighted average by authors of 0.82 μs 14 from (implants)(76 γ) and 0.8 μs 1 from (implants)(152 γ)). Other: 2014YoZZ (also from RIBF-RIKEN work) give T _{1/2} =0.80 μs 5 from (implants)(152 γ) correlated decay curve.

[†] From E γ values.

[‡] As given by 2017Gu08, based on configuration assignment for the g.s. and the 0.81- μs isomer. Other J π assignments from multipolarity assignments.

$\gamma(^{165}\text{Tb})$

E γ [†]	I γ [†]	E _i (level)	J π _i	E _f	J π _f	Mult. [‡]	α [#]	Comments
55 4	0.21 3	55	(5/2 ⁺)	0	(3/2 ⁺)	(M1)	12.3 13	α (theory) for 55 2. For E γ =55 4, value is 12 10 as E γ is within 1 keV of K-shell binding energy of 51.996 keV. 2017Gu08 list 12.28 18.
76 @ 2	0.20 @ 3	131	(7/2 ⁺)	55	(5/2 ⁺)	(M1)	4.8 4	2017Gu08 list α (theory)=4.84 7.
76 @ 2	0.72 @ 10	207	(7/2 ⁻)	131	(7/2 ⁺)	(E1)	0.62 5	2017Gu08 list α (theory)=0.624 9.
152 2	1.9 3	207	(7/2 ⁻)	55	(5/2 ⁺)	(E1)	0.098 4	2017Gu08 list α (theory)=0.0975 14.

[†] From 2017Gu08.

[‡] Assigned by 2017Gu08, based on intensity balances.

[#] Total theoretical internal conversion coefficients, calculated using the BrIcc code (2008Ki07) with Frozen orbital approximation based on γ -ray energies, assigned multiplicities, and mixing ratios, unless otherwise specified.

@ Multiply placed with intensity suitably divided.

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Level Scheme

Intensities: Relative I_γ
@ Multiply placed: intensity suitably divided

Legend

- $I_\gamma < 2\% \times I_\gamma^{\max}$
- $I_\gamma < 10\% \times I_\gamma^{\max}$
- $I_\gamma > 10\% \times I_\gamma^{\max}$

