

^{81}Zr $\varepsilon+\beta^+$ decay (5.3 s) 2009St04

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	M. Shamsuzzoha Basunia		NDS 199,271 (2025)	1-Sep-2024

Parent: ^{81}Zr : E=0; $J^\pi=(3/2^-)$; $T_{1/2}=5.3$ s 3; $Q(\varepsilon)=8201$ 90; $\% \varepsilon + \% \beta^+$ decay=100

^{81}Zr -Q(ε): from measured mass excess of -65720.7 keV 28 ^{81}Y (2023Xi01) [Other: -65713 keV 5 (2021Wa16)] and mass excess of -57520 keV 90 of ^{81}Zr (2021Wa16). Other: $Q(\beta^-)=-8190$ 90 (2021Wa16).

^{81}Zr - $J^\pi, T_{1/2}$: from Adopted Levels of ^{81}Zr .

Source from $^9\text{Be}(^{124}\text{Xe}, X)$, E=140 MeV/nucleon ^{124}Xe beam at NSCL, MSU. A1900 fragment separator used to analyze and separate ^{81}Zr fragments which were then implanted on double-sided silicon strip detector for β counting. Measured prompt and delayed γ rays using SeGA array of 16 Ge detectors. The half-life of ^{81}Zr was measured from β decay events.

 ^{81}Y Levels

E(level) [†]	J^π [†]	$T_{1/2}$ [†]
0	(5/2 ⁺)	70.4 s 11
113.30 4	(3/2 ⁻)	≤ 7 ns
288.66 5	(5/2 ⁻)	≤ 7 ns
343.48 19	(1/2 ⁻)	

[†] From Adopted Levels.

 $\gamma(^{81}\text{Y})$

E_γ [†]	I_γ	$E_i(\text{level})$	J_i^π	E_f	J_f^π
113.31 4		113.30	(3/2 ⁻)	0	(5/2 ⁺)
175.38 3		288.66	(5/2 ⁻)	113.30	(3/2 ⁻)
230.1 2	100	343.48	(1/2 ⁻)	113.30	(3/2 ⁻)

[†] From Adopted Gammas.

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Decay Scheme

Intensities: Type not specified

