

¹⁶⁹Ir α decay (0.570 s) 2012Th13,2005Sc22,1999Po09

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

Parent: ¹⁶⁹Ir: E=0.0; J ^{π} =(1/2⁺); T_{1/2}=0.570 s 30; Q(α)=6141 4; % α decay=56 9

¹⁶⁹Ir-T_{1/2}: From 2012Th13. Others: 0.353 s 4 (2005Sc22), 0.64 s +46-24 (1999Po09), 0.8 s 5 (2004GoZZ). Note sharp disagreement of half-life in 2005Sc22 from that in 2012Th13, both papers from work at the same laboratory. 2005Sc22 is a conference report.

¹⁶⁹Ir-Q(α): From 2021Wa16.

¹⁶⁹Ir-% α decay: % α =56 9 from weighted average of % α =57 9 (2012Th13), and 50 18 (1999Po09). Other: 42 15 (2005Sc22).

2012Th13: ¹⁶⁹Ir from α -decay of ¹⁷³Au, where ¹⁷³Au nuclei were produced by bombarding a 0.5 mg/cm² ⁹²Mo target of 97% enrichment with a beam of ⁸⁴Sr¹⁶⁺ ions from the k130 cyclotron of the Accelerator Laboratory of the University of Jyväskylä. Recoiling residues were separated using the RITU He-filled magnetic separator and traversed an isobutane-filled multiwire proportional chamber (MWPC) and implanted into a 300- μ m-thick DSSD in the GREAT spectrometer. Measured E α , I α , recoil- α -correlation, Deduced isomers, Q α , α -decay branching ratios, T_{1/2}, reduced widths, hindrance factors.

2005Sc22: sources from ¹¹²Sn(⁶⁰Ni,p2n) at 266 MeV. Recoil nuclei of ¹⁶⁹Ir analyzed by RITU Fragment Mass Analyzer, recoil-decay tagging method. Recoils implanted in silicon-strip detectors of the GREAT spectrometer. Measured E α , I α . This work is from the same laboratory as 2012Th13.

Additional information 1.

1999Po09: sources from ¹⁷⁷Tl-¹⁷³Au-¹⁶⁹Ir α decay chain. ¹⁷⁷Tl produced by ¹⁰²Pd(⁷⁸Kr,X) at 370 MeV at ANL. Recoil nuclei of ¹⁷⁷Tl analyzed by Fragment Mass Analyzer. Measured E α , I α .

Other: 2004GoZZ.

¹⁶⁵Re Levels

E(level)	J ^{π}
0.0	(1/2 ⁺)

α radiations

E α	E(level)	I α [‡]	HF [†]	Comments
6008 7	0.0	100	1.5 4	E α : weighted average of 6019 14 (2012Th13), and 6005 8 (1999Po09). Other: 5993 4 (2005Sc22). I α : Only one α branch is reported. Reduced α width=64 keV 13 (2012Th13), 95.6 keV (2005Sc22), 49 keV 25 (1999Po09).

[†] The nuclear radius parameter r₀(¹⁶⁵Re)=1.5639 39 is deduced from interpolation of radius parameters of the adjacent even-even nuclides in 2020Si16.

[‡] For absolute intensity per 100 decays, multiply by 0.56 9.