

¹⁷⁴Lu

In “Radioactive isotopes of lutetium and hafnium” Wilkinson and Hicks described the identification of ¹⁷⁴Lu in 1951 ([1951Wi08](#)). Targets of rare earth elements were irradiated with various light particles produced with the Berkeley 60-in. cyclotron and the linear accelerator. ¹⁷⁴Lu was primarily produced with 10 MeV protons, 19 MeV deuterons and fast neutrons on lutetium. Decay curves, absorption curves, and electron spectra were measured following chemical separation. “165±5-day Lu¹⁷⁴ — This activity was found in the lutetium fraction from bombardments of lutetium with fast neutrons, 10-Mev protons, and 19-Mev deuterons; it has also been found together with the well known 6.7-day Lu¹⁷⁷ in the bombardment of hafnium with 19-Mev deuterons. Allocation to mass 174 can be made with certainty on the basis of formation by (n,2n), (p,pn), and (d,p2n) reactions in lutetium and the (d,α) reaction in hafnium.” The reported half-life for ¹⁷⁴Lu corresponds to an isomer and transitions populating the ground state were measured nine years later by Harmatz et al. ([1960Ha18](#)).

Adapted from reference ([2012Gr19](#))

- [1951Wi08](#) G. Wilkinson and H. G. Hicks, Phys. Rev. **81**, 540 (1951).
[1960Ha18](#) B. Harmatz, T. H. Handley, and J. W. Mihelich, Phys. Rev. **119**, 1345 (1960).
[2012Gr19](#) J. L. Gross and M. Thoennessen, At. Data Nucl. Data Tables **98**, 983 (2012).

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