

⁵He

First evidence for the observation of ⁵He was reported by Williams et al. in “Evidence for the Instability of He⁵” in 1937 ([1937Wi01](#)). ⁵He was produced in the reaction ${}^7\text{Li} + {}^2\text{H} \rightarrow {}^5\text{He} + {}^4\text{He}$. Deuterons were accelerated with the 275 kV transformer-kenetron apparatus of the University of Minnesota and the range of α -particles was measured with a modified Dunning ionization chamber. “Assuming the peak of 7.10 cm mean range to be α particles from [${}^7\text{Li} + {}^2\text{H} \rightarrow {}^5\text{He} + {}^4\text{He}$], the expected range of He⁵ is 4.35 cm on reasonable assumptions for the range-energy distribution for He⁵ as compared to He⁴. The mass of He⁵ is then 5.0140 which is unstable by 0.93 MeV.”

Adapted from reference ([2012Th01](#))

[1937Wi01](#) J. H. Williams, W. G. Shepherd, and R. O. Haxby, Phys. Rev. **51**, 888 (1937).

[2012Th01](#) M. Thoennessen, At. Data Nucl. Data Tables **98**, 43 (2012).

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