

²¹⁷Th

²¹⁷Th was discovered in 1968 by Valli and Hyde in “New isotopes of thorium studied with an improved helium-jet recoil transport apparatus” (1968Va18). ¹⁶O beams with a maximum energy of 166 MeV from the Berkeley heavy ion linear accelerator HILAC bombarded ²⁰⁶Pb targets to produce ²¹⁷Th in (5n) fusion-evaporation reactions. Recoil products were deposited on a metallic surface in front of a semiconductor detector with a helium gas jet. “Thorium-217: ...in half-life measurements that were run continuously during and between beam bursts, a very short-lived group was observed at 9.250±0.010 MeV... We obtained an upper limit of 0.3 msec for the half-life... The yield maximum at 120-MeV beam energy corresponds to an excitation energy of 57 MeV for the compound nucleus ²²²Th. This is a proper amount for the evaporation of five neutrons in the de-excitation process, indicating strongly that the 9.250-MeV activity belongs to ²¹⁷Th.”

Adapted from reference (2013Fr03)

1968Va18 K. Valli and E. K. Hyde, Phys. Rev. **176**, 1377 (1968).

2013Fr03 C. Fry and M. Thoennessen, At. Data Nucl. Data Tables **99**, 345 (2013).

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