

## **<sup>236</sup>Th**

The first observation of <sup>236</sup>Th was reported by Kaffrell and Trautmann in “Identification of <sup>236</sup>Th” in 1973 ([1973Ka10](#)). <sup>238</sup>U targets were irradiated with bremsstrahlung  $\gamma$ -rays with a maximum energy of 140 MeV produced by bombarding a thick copper target with electrons from the Mainz linear accelerator. Gamma-ray spectra and decay curves were measured following chemical separation. “For the mass assignment and determination of the <sup>236</sup>Th half-life, the genetic relationship to the well-known 9.1 min <sup>236</sup>Pa has been used. This facilitated the differentiation between <sup>236</sup>Th and the lighter thorium nuclides formed under the described irradiation conditions by ( $\gamma$ ,2pxn) reactions having higher cross sections. An analysis of the growth-decay curve of the strongest  $\gamma$ -ray of <sup>236</sup>Pa at 642 keV yields a half-life of  $36 \pm 3$  min for <sup>236</sup>Th.” Seven months later Orth et al. independently reported a half-life of 37.5(15) min ([1973Or06](#)).

Adapted from reference ([2013Fr03](#))

- [1973Ka10](#) N. Kaffrell and N. Trautmann, Z. Naturforsch. **28**, 541 (1973).  
[1973Or06](#) C. J. Orth, W. R. Daniels, and B. J. Dropesky, Phys. Rev. C **8**, 2364 (1973).  
[2013Fr03](#) C. Fry and M. Thoennessen, At. Data Nucl. Data Tables **99**, 345 (2013).

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