

## $^{236}\text{Np}$

In 1949, James et al. identified  $^{236}\text{Np}$  in “Products of helium-ion and deuteron bombardment of  $\text{U}^{235}$  and  $\text{U}^{238}$ ” ([1949Ja01](#)). Natural uranium and  $^{235}\text{U}$  targets were bombarded with 16 MeV deuterons and 32 MeV  $\alpha$  particles from the Berkeley 60-inch cyclotron. X-rays,  $\gamma$ -rays and  $\alpha$  particles were measured following chemical separation. “ $\text{Np}^{236}$  is a  $\beta$ -particle emitter with a half life of 22 hr. Its daughter,  $\text{Pu}^{236}$ , emits  $\alpha$  particles with a range of 4.3 cm (energy 5.7 mev); it decays with a half life of 2.7 years.” The observed state corresponds to an isomer and the ground state of  $^{236}\text{Np}$  was first observed six years later ([1955St10](#)).

Adapted from reference ([2013Fr02](#))

- [1949Ja01](#) R. A. James, A. E. Florin, H. H. Hopkins Jr., and A. Ghiorso, The Transuranium Elements: Research Papers, Book 2, Vol. 14B, paper 22. 8, G. T. Seaborg ed. , p. 1604 (1949).
- [1955St10](#) M. H. Studier, J. E. Gindler, and C. M. Stevens, Phys. Rev. **97**, 88 (1955).
- [2013Fr02](#) C. Fry and M. Thoennessen, At. Data Nucl. Data Tables **99**, 96 (2013).

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