

## **$^{221}\text{Pa}$**

$^{221}\text{Pa}$  was first observed by Hingmann et al. and the results were published in the 1983 paper “Identification of  $^{222}\text{U}$  and  $^{221}\text{Pa}$  by  $\alpha$ -correlation chains” ([1983Hi12](#)).  $^{186}\text{W}$  was bombarded with 4.72 MeV/u  $^{40}\text{Ar}$  at GSI, Darmstadt. Evaporation residues were then separated by the velocity filter SHIP and  $\alpha$  decays were measured. “Altogether six  $\alpha$ -cascades could be assigned to  $^{221}\text{Pa}$ , and the evaluation of the measured decay times yields a half-life of  $(6.1^{+3.7}_{-2.4}) \mu\text{s}$  for this isotope.”

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

[1983Hi12](#) R. Hingmann, H. G. Clerc, C. C. Sahn, D. Vermeulen *et al.*, *Z. Phys. A* **313**, 141 (1983).

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

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