^{211}Pa

In the 2020 paper "Exploring the boundaries of the nuclear landscape: α-decay properties of ^{211}Pa" Auranen et al. reported the discovery of ^{211}Pa (2020Au04). The University of Jyväskylä K-130 cycltron accelerated an ^{36}Ar beam to 178−214 MeV and irradiated 1000 and 450 μg/cm^2 thick tatalum targets. Reaction products were separated with the recoil ion transport unit (RITU) gas-filled separator and stopped in the implantation detector of the GREAT spectrometer which also recorded subsequent α decays. "Using a fusion-evaporation reaction and a gas-filled recoil separator we have produced and, for the first time, identified rigorously the new isotope ^{211}Pa. It was found to α decay with a half-life and α-particle energy of $3.8^{+4.6}_{-1.4}$ ms and 8320(40) keV, respectively, suggesting a favored α decay."

In 2006, Kurcewicz et al. were only able to establish an upper limit for the production cross section of ^{211}Pa (2006Ku07).

Adapted from reference (2023Th03)

2006Ku07 J. Kurcewicz, Z. Liu, M. Pfutzner, P. J. Woods *et al.*, Nucl. Phys. A **767**, 1 (2006).

2020Au04 K. Auranen, J. Uusitalo, H. Badran, T. Grahn *et al.*, Phys. Rev. C **102**, 034305 (2020).

2023Th03 M. Thoennessen, Int. J. Mod. Phys. E **32**, 2330001 (2023).

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