^{166}Ta

In the paper "Identification of a new isotope: ^{166}Ta," Leber et al. reported the discovery of ^{166}Ta in 1977 (1977Le08). A 147 MeV ^{16}O beams from the Yale heavy-ion accelerator bombarded self-supporting terbium targets and ^{166}Ta was produced in the fusion-evaporation reaction ^{159}Tb(^{16}O,9n). Recoil nuclei were thermalized in a helium chamber, then transported with a helium jet to a magnetic tape where γ rays were measured with a Ge(Li) detector. "Excitation function measurements for the production of ^{170}Ta and ^{166}Ta via the ^{159}Ta(^{16}O,Xn) reaction indicated that the ^{166}Ta yield would be maximized at $\sim$145$-$150 MeV. At this bombarding energy, γ-ray transitions at 158.7 and 311.7 keV were observed to peak in intensity. These transitions had been previously reported to result from dexcitation of the 4^+ and 2^+ levels of the ground state band in ^{166}Hf. Observation of these transitions at the bombarding energy which was expected to maximize the yield of ^{166}Ta indicated that the transitions resulted from the production of ^{166}Ta and its subsequent decay to ^{166}Hf."

Adapted from reference (2012Ro36)

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