^{181}Os

Hofstetter and Daly reported the identification of ^{181}Os in their 1966 paper "Decay properties of neutron deficient osmium and rhenium isotopes. I. Decay modes of Re^{179}, Os^{180}, and Os^{181}" (1966Ho16). The Argonne 60-in. cyclotron as well as the Oak Ridge 88-in. cyclotron were used to bombard enriched ^{182}W targets with 32 MeV ^{3}He and 65 MeV ^{4}He. Gamma-ray spectra were measured with NaI(Tl) crystals and lithium drifted germanium detectors following chemical separation. "The high quality of the spectral data is indicated in [the figure], which shows clearly the marked changes produced in the low-energy γ spectrum as the l05-min osmium activity decays into 20-h Re^{181}. The l05-min activity is therefore assigned to Os^{181} with confidence." A previous tentative assignment of a 23 min half-life to ^{181}Os by Foster et al. (1958Fo47) was later reassigned to ^{180}Os (1966Ho16). Foster also assigned a 2 min half-life to ^{180}Os which probably corresponds to the isomeric state of ^{181}Os. The previously observed half-lives of 2.7 h (1960Su13) and 2.5 h (1966Be47) have not been considered sufficiently clean to warrant the claim of discovery (1965Be32, 1969Hu03, 2004Ar33). The primary assignment for the discovery is credited to Oak Ridge because the Argonne cyclotron did not have 65 MeV ^{4}He beams (1960Ra29) and the high-quality γ-ray spectra to identify ^{181}Os were measured with this beam.

Adapted from reference (2012Ro36)

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