^{137}Nd

In 1970, ^{137}Nd was reported in "^{135m}Ce and ^{137m}Nd: Isomeric States in N = 77 Isotones" by Droste et al. (1970Dr04). The Dubna U-300 cyclotron accelerated ^{18}O and ^{20,22}Ne beams which bombarded tellurium and tin targets, respectively. ^{137}Nd was produced in the fusion-evaporation reactions ^{119}Sn(^{22}Ne,4n), ^{122}Sn(^{20}Ne,5n), ^{122}Sn(^{22}Ne,7n), and ^{126}Te(^{18}O,7n). Conversion electron and γ-ray spectrometry was used to identify the isotope. "In all cases, γ-rays of 108, 177, 233 and 285 keV which all decay with the same half-life, $T_{1/2}$ = 1.60±0.15 s were observed... That the new activity belongs indeed to the nucleide ^{137}Nd is proved by (i) the energy difference of the K and L electron lines of the isomeric transition EKL = 37.0±0.8 keV as compared to the value 36.8 keV expected for Z = 60(Nd), and (ii) the shape of the excitation functions from which the number of evaporated neutrons can be determined." This half-life corresponds to an isomeric state and the γ-ray cascade populating the ground state was observed. The half-life of the ground state (37 min) was reported two years later by Ekström et al. (1972Ek04). Previously the 55.0(15) m half-life of ^{136}Nd had incorrectly been assigned to ^{137}Nd (1965Gr24). Half-lives of 35(5) min and 40(2) min were reported earlier without a mass assignment (1935Mc07) and in a conference proceeding (1968Zh01), respectively.

Adapted from reference (2012Gr02)

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