^{178}Lu

In 1957, Stribel described the discovery of ^{178}Lu at the Hochspannungslaboratorium Hechingen, Germany, in "Massenzuordnung und γ-Spektrum des 22 min-Lutetium" (1957St97). A metallic tantalum target was irradiated with fast neutrons produced by bombarding deuterons on lithium and ^{178}Lu was produced in (n,α) reactions. The resulting activity was measured with a NaI scintillation spectrometer. "Bei Diskriminierung auf γ-Energien über 250 keV fanden wir einen zeitlichen Abfall von etwa 20 min Halbwertszeit. Eine chemische Abtrennung wurde nicht durchgeführt. Da jedoch andere Aktivitäten ähnlicher Periode mit schnellen Neutronen nicht entstehen können, dürfte diese γ-Aktivität mit dem 22 min. Lutetium identisch sein, dem danach die Massenzahl 178 zuzuordnen wäre." [When gating on γ-ray energies larger than 250 keV, we found a decay with a half-life of about 20 min. No chemical separation was performed. However, because no other activities with similar lifetime can be produced with fast neutrons this γ-activity has to be identical with the 22-min lutetium and assigned to mass 178.] The measured half-life corresponds to an isomeric state and the ground state (30(5) min) was measured four years later by Kuroyanagi (1961Ku10). Previously, half-lives of 22 min and 8 h were assigned to either ^{178}Lu or ^{179}Lu (1950Bu07).

Adapted from reference (2012Gr19)

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