^{216}At

In "Artificial collateral chains to the thorium and actinium families" Ghiorso et al. discovered ^{216}At in 1948 (1948Gh01). Thorium targets were irradiated with 80 MeV deuterons from the Berkeley 184-inch cyclotron. The α-decay chain beginning at ^{228}Pa was measured following chemical separation. "After the decay of the above-described series, a second group of alpha-particle emitters can be resolved. This second series, which decays with the 22-hour half-life of its protactinium parent, is a collateral branch of the 4n radioactive family as follows: $_{91}$Pa^{228} $\xrightarrow{\alpha}$ $_{89}$Ac^{224} $\xrightarrow{\alpha}$ $_{87}$Fr^{220} $\xrightarrow{\alpha}$ $_{85}$At^{216} $\xrightarrow{\alpha}$..." In 1940, Minder (1940Mi12) and later in 1942, Leigh-Smith and Minder (1942Le01) had reported the observation of ^{216}At β-decay (1942Le01). However, it was incorrect (1942Ka01). Leigh-Smith and Minder, apparently unaware of the work by Corson et al. (1940Co01) who had discovered astatine two years earlier, suggested to name the new element anglo-helvetium (1942Le01). In 1943, Karlik and Bernert of α emission of ^{216}At within the natural radioactive decay chain (1943Ka05) was incorrect (1950Pe99). Also the observation of ^{216}At in the natural thorium radioactive decay chain (1943Ka04) was not correct (1950Pe99).

Adapted from reference (2013Fr09)

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