^{207}Bi

Germain observed the decay of ^{207}Bi in 1950 as described in "Auger effect in astatine" (1950Ge22). A bismuth target was bombarded with a 30 MeV ^{4}He beam from the Berkeley 184-inch cyclotron forming ^{211}At in the (α,2n) reaction. ^{207}Bi was then populated by α decay. Auger electrons were measured with photographic plates following chemical separation. "After 10 days, the activities of At^{210} and At^{211} would be only 10^{-10} of the original activities. Thus, these Auger electrons must have come from a daughter activity. The possible daughters are Pb^{207}, Po^{210}, and Bi^{207}. It is known that Pb^{207} is stable and Po^{210} is an alpha-emitter. Therefore, these Auger electrons in all probability have come from the K-capture decay of Bi^{207}. Furthermore, the only alpha-particles found on the plate were those of Po^{210} (these coming from the decay of At^{210}). Therefore, one can conclude that Bi^{207} decays by K-capture and its half-life is very long, probably several years." The previous assignment of a 6.4 d half-life to ^{207}Bi (1941Fa04, 1941Fa05) was incorrect.

Adapted from reference (2013Fr04)

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