^{214}Rn

In 1970, Torgerson and MacFarlane reported the first observation of ^{214}Rn in "Alpha decay of the ^{221}Th and ^{222}Th decay chains" (1970To07). A 10.6 MeV/nucleon ^{16}O beam from the Yale heavy ion accelerator was used to bombard a ^{208}Pb target forming ^{222}Th in (2n) fusion-evaporation reactions. ^{214}Rn was then populated by subsequent α decays. Recoil products were transported to a stainless steel surface with a helium jet and α spectra were measured with a Si(Au) surface barrier detector. "However, at ^{16}O incident energies below 80 MeV, the 9.040 MeV group could be clearly resolved as shown in [the figure]." Only three days later Valli et al. submitted their measurement of a 9.035(10) MeV α energy assigned to ^{214}Rn with a 0.27(2) μs half-life (1970Va13). Earlier, the assignment of a 11.7 MeV α energy to ^{214}Rn (1962Ka15) was incorrect.

Adapted from reference (2013Fr09)

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