

²⁰⁹Fr

In 1964, Griffioen and MacFarlane reported the identification of ²⁰⁹Fr in the paper “Alpha-decay properties of some francium isotopes near the 126-neutron closed shell” (1964Gr04). ¹⁹⁷Au, ^{203,205}Tl, and ²⁰⁸Pb targets were bombarded with ¹⁶O, ¹²C, and ¹¹B beams with energies up to 10.38 MeV/amu from the Berkeley HILAC. Recoil products were collected on a catcher foil which was positioned in front of gold surface-barrier detector which measured subsequent α decay. “Fr²⁰⁹ and Fr²⁰⁸: ... Once again there were indications that this alpha group is a result of two different isotopes. The Tl²⁰³+C¹² excitation function is somewhat broadened and distorted and no other alpha groups with an excitation function corresponding to a (C¹²,7n) reaction were found. The excitation function from the Au¹⁹⁷+O¹⁶ system is also consistent with the assignment to Fr²⁰⁹ and Fr²⁰⁸... ” The measured half-life was 54.7(10) s.

Adapted from reference (2013Fr09)

1964Gr04 R. D. Griffioen and R. D. Macfarlane, Phys. Rev. **133**, B1373 (1964).
2013Fr09 C. Fry and M. Thoennessen, At. Data Nucl. Data Tables **99**, 497 (2013).

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