# $^{204}$Fr

In 1964, Griffioen and MacFarlane reported the identification of $^{204}$Fr in the paper "Alpha-decay properties of some francium isotopes near the 126-neutron closed shell" (1964Gr04). $^{197}$Au, $^{203,205}$Tl, and $^{208}$Pb targets were bombarded with $^{16}$O, $^{12}$C, and $^{11}$B 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 $\alpha$ decay. "Fr$^{205}$ and Fr$^{204}$: ... Since it follows the excitation function for the 6.91-MeV group, this would identify this group as the parent of At$^{201}$ namely, Fr$^{205}$. The assignment of the 7.02-MeV group to Fr$^{204}$ is based on the excitation-function data and on alpha decay systematics." The measured half-life was 2.0(5) 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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