^{254}Rf

In 1997, Heßberger described the identification of ^{254}Rf in "Spontaneous fission and alpha-decay properties of neutron deficient isotopes $^{257-253}$104 and ^{258}106" (1997He29). ^{204}Pb and ^{206}Pb targets were bombarded with 4.68 MeV/u and 4.81 MeV/u ^{50}Ti beams from the GSI UNILAC accelerator forming ^{254}Rf in (2n) evaporation reactions. Recoil products were separated with the velocity filter SHIP and implanted in a position sensitive 16-strip silicon wafer which also measured subsequent α decay and spontaneous fission. "New spontaneous fission activities were identified and assigned to ^{253}104, ^{254}104, and ^{258}106. The half-lives were measured as $T_{1/2} = (48^{+17}_{-10})$ μs for ^{253}104, $T_{1/2} = (23\pm3)$ μs for ^{254}104, and $T_{1/2} = (2.9^{+1.3}_{-0.7})$ ms for ^{258}106. No indication for α-decay of any of these isotopes was found." Earlier a 1.8 s half-life was reported for ^{253}Rf in a conference proceeding (1976FlZN) as quoted in (1981Sc22, 1987Hy02). For ^{254}Rf a lower limit of $<$3 ms (1975Og01) was previously reported and a 0.5(2) ms (1975Te01) measurement was considered to be ambiguous (1997He29).

Adapted from reference (2013Th02)

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