

## $^{233}\text{Fr}$

$^{233}\text{Fr}$  was discovered by Alvarez-Pol and the results were published in the 2010 paper “Production of new neutron-rich isotopes of heavy elements in fragmentation reactions of  $^{238}\text{U}$  projectiles at 1 A GeV” (2010A124). A beryllium target was bombarded with a 1 A GeV  $^{238}\text{U}$  beam from the GSI SIS synchrotron. The isotopes were separated and identified with the high-resolving-power magnetic spectrometer FRS. “To search for new heavy neutron-rich nuclei, we tuned the FRS magnets for centering the nuclei  $^{227}\text{At}$ ,  $^{229}\text{At}$ ,  $^{216}\text{Pb}$ ,  $^{219}\text{Pb}$ , and  $^{210}\text{Au}$  along its central trajectory. Combining the signals recorded in these settings of the FRS and using the analysis technique previously explained, we were able to identify 40 new neutron-rich nuclei with atomic numbers between  $Z=78$  and  $Z=87$ ;  $^{205}\text{Pt}$ ,  $^{207-210}\text{Au}$ ,  $^{211-216}\text{Hg}$ ,  $^{214-217}\text{Tl}$ ,  $^{215-220}\text{Pb}$ ,  $^{219-224}\text{Bi}$ ,  $^{223-227}\text{Po}$ ,  $^{225-229}\text{At}$ ,  $^{230,231}\text{Rn}$ , and  $^{233}\text{Fr}$ .”

Adapted from reference (2013Fr09)

2010A124 H. Alvarez-Pol, J. Benlliure, E. Casarejos, L. Audouin *et al.*, Phys. Rev. C **82**, 041602 (2010).

2013Fr09 C. Fry and M. Thoennessen, At. Data Nucl. Data Tables **99**, 497 (2013).

Please cite this abstract as: “FRIB Nuclear Data Group, *Discovery of Nuclides Project*, Isotope Database, doi:[10.11578/frib/2279152](https://doi.org/10.11578/frib/2279152)”