^{208}Au

^{208}Au 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}U projectiles at 1A GeV" (2010Al24). A beryllium target was bombarded with a 1 A GeV ^{238}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}At, ^{229}At, ^{216}Pb, ^{219}Pb, and ^{210}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}Pt, $^{207-210}$Au, $^{211-216}$Hg, $^{214-217}$Tl, $^{215-220}$Pb, $^{219-224}$Bi, $^{223-227}$Po, $^{225-229}$At, ^{230,231}Rn, and ^{233}Fr."

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