^{289}Fl

^{289}Fl was first identified by Oganessian et al. in "Measurements of cross sections for the fusion-evaporation reactions ^{244}Pu(^{48}Ca,xn)$^{292-x}$114 and ^{245}Cm(^{48}Ca,xn)$^{293-x}$116" in 2004 (2004Og07). ^{48}Ca beams of 243, 250, and 257 MeV from the Dubna U400 cyclotron bombarded a PuO_2 target enriched ^{244}Pu and a CmO_2 target enriched in ^{245}Cm. ^{288}Fl and ^{289}Fl were produced in (4n) and (3n) reactions, respectively, on the PuO_2 target. The residues were separated with a gas-filled recoil separator and implanted in a semiconductor detector array. Subsequent α particle decay and spontaneous fission events were recorded in this array and in eight detectors arranged in a box configuration around the implantation detector. "At E*=41 MeV and 47 MeV, three chains of sequential ER$-\alpha-\alpha-$SF decays were observed. These chains are identical to those detected in previous ^{244}Pu+^{48}Ca experiments at 236 MeV (E*=35 MeV) and to those produced as decay products of the Z=116 nucleus observed in the ^{248}Cm+^{48}Ca reaction. The maximum yield of this nuclide, ^{289}114, is observed at E*=41 MeV with a peak production cross section of $1.7^{+2.5}_{-1.1}$ pb." Based on these results the previous assignment for the observation of ^{288}Fl (2000Og05, 2000Og07) was changed to ^{289}Fl. Earlier reports of ^{289}Fl (1999Og07, 1999Og10) could not be confirmed. A comprehensive overview of the reviewing the status of the discovery of these isotopes is presented in reference (2007Og01).

Adapted from reference (2013Th02)

1999Og07 Yu. Ts. Oganessian, A. V. Yeremin, A. G. Popeko, S. L. Bogomolov *et al.*, Nature **400**, 242 (1999).

1999Og10 Yu. Ts. Oganessian, V. K. Utyonkov, Yu. V. Lobanov, F. Sh. Abdullin *et al.*, Phys. Rev. Lett. **83**, 3154 (1999).

2000Og05 Yu. Ts. Oganessian, V. K. Utyonkov, Yu. V. Lobanov, F. Sh. Abdullin *et al.*, Phys. Rev. C **62**, 041604 (2000).

2000Og07 Yu. Ts. Oganessian, V. K. Utyonkov, Yu. V. Lobanov, F. Sh. Abdullin *et al.*, Phys. Atomic Nuclei **63**, 1679 (2000).

2004Og07 Yu. Ts. Oganessian, V. K. Utyonkov, Yu. V. Lobanov, F. Sh. Abdullin *et al.*, Phys. Rev. C **69**, 054607 (2004).

2007Og01 Y. Oganessian, J. Phys. G **34**, R165 (2007).

2013Th02 M. Thoennessen, At. Data Nucl. Data Tables **99**, 312 (2013).

Please cite this abstract as: "FRIB Nuclear Data Group, *Discovery of Nuclides Project*, Isotope Database, doi:10.11578/frib/2279152"