

²⁸⁷F1

²⁸⁷F1 was first identified by Oganessian et al. in “Measurements of cross sections for the fusion-evaporation reactions $^{244}\text{Pu}(^{48}\text{Ca},\text{xn})^{292-x}\text{114}$ and $^{245}\text{Cm}(^{48}\text{Ca},\text{xn})^{293-x}\text{116}$ ” in 2004 ([2004Og07](#)). ⁴⁸Ca beams of 243, 250, and 257 MeV from the Dubna U400 cyclotron bombarded a PuO₂ target enriched ²⁴⁴Pu and a CmO₂ target enriched in ²⁴⁵Cm. ²⁸⁶F1 and ²⁸⁷F1 were populated by α -decay from ²⁹⁰116 and ²⁹¹116 which were formed in (3n) and (2n) evaporation reaction of the 243 MeV beam on the CmO₂ target, respectively. ²⁸⁷114 was also formed in the (5n) reaction on the PuO₂ target at 257 MeV. 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. “The properties of the daughter nucleus of one of the element 116 isotopes produced in the ²⁴⁵Cm+⁴⁸Ca reaction (two events) essentially reproduces the characteristics of the 10-s (ER- α - α -SF) chain arising in the ²⁴⁴Pu+⁴⁸Ca reaction that we assign to the decay of isotope ²⁸⁷114.” Earlier reports of ²⁸⁷114 ([1999Og07](#)) 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).
- [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).

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