

## Study of the formation and decay properties of neutron-deficient isotopes No

Tuesday 12 October 2021 16:00 (15 minutes)

In the FLNR JINR at the kinematic separator SHELS the new neutron-deficient isotope  $^{249}\text{No}$  was synthesized for the first time in the complete fusion reaction  $^{204}\text{Pb}(^{48}\text{Ca},3n)^{249}\text{No}$ . Using the GABRIELA detection system, the new isotope was identified through genetic correlations with the known daughter and granddaughter nuclei  $^{245}\text{Fm}$  and  $^{241}\text{Cf}$ , and new activity has an energy  $E_\alpha = 9129$  keV and half-life  $T_{1/2} = 38.3(2.6)$  msec. An upper limit of 0.2% was evidenced for the fission branch of  $^{249}\text{No}$ . Correlation events of the  $^{249}\text{No}$  alpha activity with subsequent alpha decays of energy 7728(20) keV and half-life  $T_{1/2} = 0.94^{+0.78}_{-0.29}$  min provided a firm measurement of the electron-capture branch of  $^{245}\text{Fm}$  to  $^{245}\text{Es}$ . The production cross section was found to be  $\sigma(3n) = 0.47(3)$  nb at a mid-target beam energy  $E_{\text{lab}} = 222.2$  MeV, which corresponds to the maximum of the calculated excitation function. The excitation function for the 1n, 2n and 3n evaporation channels was measured.

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**Session Classification:** Nuclear Physics

**Track Classification:** Experimental Nuclear Physics