

**THE HEAVIEST NUCLEI ²⁹⁴Ts AND ²⁹⁴Og:
EXPERIMENTAL STUDY AND PERSPECTIVES**

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More than 50 new inhabitants of the predicted “Island of stability” of the superheavy elements have been observed in the experiments using accelerated ⁴⁸Ca ions and targets ranging from ²³⁵U to ²⁵¹Cf. The determined decay properties of all the observed isotopes indicate increase of their life-times with approach to the hypothetic closed neutron shell $N=184$ [1]. However, the heaviest nuclei synthesized by now, ²⁹⁴Ts ($Z=117$) and ²⁹⁴Og ($Z=118$), have 177 and 176 neutrons [2, 3] and are still 7 and 8 neutrons apart from $N=184$.

This work reviews experimental studies that have been performed employing the DGFRS (JINR, Dubna) and resulted in production of the heaviest ²⁹⁴Ts and ²⁹⁴Og in the most recent experiments. Future possibilities of synthesizing new nuclides in the region of SHEs with higher Z (119 and 120), as well as of more neutron-rich isotopes of Lv, Ts, and Og nuclei are discussed.

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