

## Recent results in the Pb-Rn region in the vicinity of the neutron-midshell at N=104\*

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The contribution reviews the results of our recent experiments at the velocity filter SHIP (GSI, Darmstadt) and at ISOLDE (CERN), aimed at the study of very neutron-deficient Pb-Rn nuclides in the vicinity of N=104.

The first part presents the unambiguous identification of the EC-delayed fission (ECDF) in the odd-odd isotopes <sup>186</sup>Bi and <sup>192,194</sup>At, which is a new phenomenon in this region of nuclei. The ECDF data allow us to study the fission properties of the nuclei which do not decay via spontaneous fission at all. The preliminary analysis indicate unusually high ECDF probabilities for the nuclides <sup>186</sup>Bi and <sup>192,194</sup>At.

The second part of the contribution will discuss the new data related to the shape coexistence phenomena in the Pb region. Here, two recent results will be highlighted:

- First experimental evidence for the ground state deformation in the new isotopes <sup>193,194</sup>Rn, identified in our experiments at SHIP [1].
- Mean square charge radii measurements of the lightest isotopes <sup>182–190</sup>Pb at ISOLDE (CERN), proving the sphericity of lead nuclei in the vicinity and beyond the mid-shell at N=104 [2].

The two latter results will be discussed in the shape-coexisting framework, including both macroscopic-microscopic and beyond mean-field approaches.

Further perspectives for the research in this region of nuclei will be presented.

[1] A.N. Andreyev *et al.* Phys. Rev. C74, 064303 (2006).

[2] H. De Witte *et al.* Phys. Rev. Lett. 98, 112502 (2007).

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