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Charge radii and magnetic moments of isotopes near $N=126$ neutron shell.

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In the recent experiments at RILIS-CERN, the high precision measurements of nuclear charge radii and magnetic moments have been performed for heavy isotopes in the region of $N=126$. We will present our results of simultaneous analysis of the ground state characteristics in terms of the Fayans energy density functional DF3-a [1-3] newly tuned by variation of the previously unused volume (isovector) parameter $h-2$ [4].

Additional constraint is implemented from the upper bound of the giant dipole resonance energy in 208Pb . Also an extended set of restrictions on the symmetry energy and its slope at saturation density $L(\rho_0)$ for symmetric nuclear matter is applied. They were obtained from the data on nuclear masses, results of ab initio calculations with N3LO, the neutron skin (ΔR_{np}) values derived from PREXP-II, CREX experiments, augmented by the observational data on the radii of neutron stars and on gravitational waves registration (see [5]).

The systematic calculations of the charge radii and magnetic moments are performed for Pt to Bi isotopes and compared with the latest data [1-3] in the vicinity of neutron shell $N=126$.

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