Production and study of heavy neutron rich nuclei – GALS setup.

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A new setup, based on stopping nuclei in the gas cell and subsequent resonance laser ionization and separation by magnetic field is now under construction at Flerov Lab JINR. This setup aims to synthesis and study of new neutron rich heavy nuclei produced in low energy multi-nucleon transfer reactions.
The heavy neutron rich nuclei is very important for nuclear physics investigations, for the understanding of astrophysical nucleosynthesis and r-process. In this region is the closed neutron shell N=126 located which is the last so-called “waiting point”. Study of the structural properties of nuclei along the neutron shell N = 126 could also contribute to the present discussion of the quenching of shell gaps in nuclei with large neutron excess.
A creation and launch of this facility will open a new field of research in low-energy heavy-ion physics, and new horizons in the study of unexplored “north-east” area of the nuclear map. It could be helpful also for finding a new way for production heavy and superheavy nuclei.
The current status and perspectives of this setup will be discussed.