

REPORT on «Status of the GALS set-up»

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The new Gas cell based Laser ionization and Separation setup called GALS will become one of the world-class facility being the basis at the Flerov Laboratory of Nuclear Reactions (FLNR) to study multinucleon transfer reaction products from the north-east part of the nuclear map – near to or above the magic neutron number $N = 126$. Several times scientific presentations on GALS have been highly appreciated by the Nuclear Physics PAC of JINR as stated in the written recommendations of the 34th and 35th meetings PAC for Nuclear Physics in June 2011 and January 2012, respectively. The forthcoming success of the GALS project initiated by the late Valery Zagrebaev (encouraged by our previous PAC chairman, Professor Walter Greiner) might be a good way for the production and/or synthesis of heavy/superheavy elements with high counting rates.

After the success of test runs in 2018 in collaboration with iThemba LABS colleagues, first gamma-ray spectroscopy data of Yb isotopes could be obtained in order to bring information on deformation and triaxiality in these nuclei. The GALS facility at FNRL U-400M cyclotron is in a stage of build-up. The first on-line tests are planned to be performed on Os isotopes with the perspective of reaching the neutron magic line $N = 126$ as expected by the predictions of A. Karpov using the model of V. Zagrebaev and W. Greiner.

In conclusion, as the main results obtained in 2017-2018 appear to be quite satisfactory and whereas both the requested resources and the time schedules of the Project GALS remain rather reasonable, the scientific programme that is proposed for the 2019-2021 period appears to be very promising. I do recommend full support of the Nuclear Physics PAC.



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NB : Some details of this short report were taken from the written contribution of a talk given by S. Zemlyanov last September at the EXON2018 Symposium.