REVIEW

of the report "Synthesis and properties of superheavy elements, the structure of nuclei at the limits of nucleon stability" (Dr. A. Svirikhin)

Dr. A.Svirikhin's report "The study of the chemical and physical properties of superheavy elements at the SHE factory" is devoted to the development of research aimed at studying the chemical and physical properties of superheavy elements in FLNR JINR. I would like to note right away that this area of researches is an extremely urgent problem of modern nuclear physics, and progress in this area is primarily determined by the development of modern experimental technique. Such work is being intensively carried out in the FLNR JINR of the DC-280 cyclotron and the GRAND separator, complemented by the GABRIELA-III detection system. To date, the following new data have already been obtained on the radioactive decay of neutron-deficient nuclei $^{228\text{-}231}$Pu, ^{248,249}No, ^{287}Fl. Also, events have been discovered that can be associated with the decay of previously unknown isotopes ^{226,227}Pu. The use of GRAND as a preseparator for the installation of the "Cryodetector" allowed us to obtain indications of the high volatility and inertness of Fl. The modernization of the experimental complex, carried out by 2024, allows the team to set ambitious aims for further study of the properties of superheavy nuclei, in particular, on the properties of radioactive decay, on the mechanisms and barriers of fission of Fl, Ds, Ru nuclei.

I am absolutely sure that the experimental research planned by the scientific team can be described as extremely relevant for modern nuclear physics. The implementation of such a research program will lead to world-class results.

Deputy director

of SINP MSU Dmitri Eremenko