

**Report of the Reviewer on the proposal for the extension of the theme
"Investigations of Condensed Matter by Modern Neutron Scattering Methods"**

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During the period of last three years, the scientific theme 04-4-1121-2015/2017 "Investigations of Condensed Matter by Modern Neutron Scattering Methods" was realized successfully at FLNP. The research activities of the theme were concentrated on the actual problems of the interdisciplinary research of condensed matter, which attracted considerable interest of scientific community. The obtained scientific outcome is impressive, it consists of about 300 scientific articles, including those in highly ranked journals (Nature Chemistry, Nature Communications, Scientific Reports by Nature Publishing Group, Physical Review B, etc.), and more than 300 conference presentations. A number of scientific results were distinguished by First JINR Prizes and Award of the Romanian Academy of Science. A large progress has been achieved in the development of the IBR-2 spectrometer complex, and the number of spectrometers was increased.

The planned research activities in the framework of the extended theme provide a good balance of fundamental and applied studies of structure, dynamics and properties of novel functional materials, nanosystems, biological objects, polymers, rocks and minerals, constructional materials, non-destructive control and neutron imaging of bulk materials and products and focused on actual scientific topics. The experimental studies will be performed at the spectrometer complex of the IBR-2 high flux reactor, one of the main JINR experimental facilities and world most intense pulsed neutron sources. The important feature of the research activities is a tough cooperation with numerous institutions from JINR Member and Associated Member States, as well as JINR Laboratories – BLTP, VBLHE, FLNR, LIT, LRB. These activities will be also supplied by the User Programme, successfully realized at the spectrometer complex of IBR-2 reactor over last years.

The development of the IBR-2 spectrometer complex, including upgrade of the available neutron scattering instruments as well as creation of new ones and development of neutron scattering techniques, will remain the important part of the theme. These activities are essential for maintaining of the IBR-2 spectrometer complex at the world level among other neutron centers and following up the trends in development of neutron instrumentation. The planned schedule of the spectrometer complex development tasks and requested financial sources are appropriate.

The realization of the theme is based on the Department of Neutron Scattering Investigations of Condensed Matter of FLNP. The Department personnel has long standing experience in the aforementioned activities, proved by numerous highly ranked publications, conference presentations, awards and prizes of different level. The Department has a considerable number of young scientists and specialists from JINR Member States.

Finally, I recommend realization of these activities at JINR and endorsing the extension of the theme "Investigations of Condensed Matter by Modern Neutron Scattering Methods" for a period of 3 years with the first priority.

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