

New inelastic neutron scattering spectrometer at the IBR-2 reactor: the status and the prospects of the project development

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The status of Inelastic Neutron Scattering Spectroscopy at FLNP has been under concern of both the user community and the Laboratory Management, instigating discussions within both parties. It became clear that the two spectrometers available at the moment, once competitive to European class instruments, have lost the race years ago, and they no longer satisfy the needs of the user community in the Eastern Europe region. It is therefore of the utmost importance to advance INS Spectroscopy in the direction set historically, and to support the maintaining the world renown scientific position of the JINR.

In order to regain competitiveness, or at least comparativeness, with the instrumentation of European neutron scattering facilities, it is necessary to build new INS spectrometers that would make use of up to date neutron optics and design solutions in order to deliver high resolution results, of excellent signal-to-background ratio over a broad range of energy transfer, from as small samples as possible in a time-wise highly efficient way. The brightness of the IBR-2 source should be better made use of, and high luminosity (large acceptance) instrument designed.

Following the recommendations of the previous PAC meeting, we are going to outline the case for justification for the future opening of the relevant project that would encompass the design and construction of a suite of two novel INS spectrometers, with a special focus on the first of them. The progress of works towards opening a new project in the framework of the theme “Condensed matter research using modern neutron scattering methods” will be outlined.