

XXV International Baldin Seminar on High Energy Physics Problems "Relativistic Nuclear Physics and Quantum Chromodynamics"



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Status of the Short-Range Correlation program at JINR

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Short-Range Correlations (SRC) are short-lived fluctuations of strongly interacting highly compact pairs of nucleons. The distance between such nucleons is comparable to their radii and the relative momenta are larger than the fermi sea level. The ongoing world-wide efforts on SRC studies are based mostly on electron scattering experiments, which have shown far-reaching impacts of SRCs on many-body systems, the nucleon-nucleon interactions, and nuclear substructure. The Nuclotron several GeV carbon-12 beam and the BM@N setup allowed for so-called inverse kinematics measurements, where the nuclear fragment(s) are detected after a quasi-elastic knockout reaction. The first SRC experiment at BM@N in 2018 has shown that detection of an intact final state ^{11}B leads to suppression of initial- and final-state interactions in quasi-elastic knockout reaction. Also, 23 events of SRC-breakup showed agreement with electron beam experiments. The analysis of the second measurement of SRC at BM@N in 2022 with an improved setup is currently ongoing. We discuss the preliminary results of the 2022 data analysis and plans for the SRC program at JINR.

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