

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



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## From cumulative processes to cold superdense baryon matter

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Started in the late 1950th at DLNP JINR pioneering experimental studies of proton scattering on nuclei allowed D.I. Blokhintsev assumed the presence in nuclei a lower mass nucleus in a compressed state, i.e. the presence of a cold strongly compressed component in ordinary nuclear matter. The search and study of two- and three-nucleon systems in nuclei continued at DLNP JINR and ITEP (Moscow) and beyond. The huge interest in the study of multinucleon (multiquark) systems was initiated by the Baldin's article appeared in 1971 where "cumulative processes" were predicted. The "cumulative processes" were discovered in experiments with accelerated deuteron beams at the LHE JINR in the same year. These investigations were carried out in the kinematic region, outside the kinematics of the nucleon-nucleon interaction. It is useful the processes in this kinematic region to call cumulative processes not look back on the theoretical models. The experimental data stimulated the emergence of many theoretical models that considered various multinucleon (multiquark) configurations in nuclei to explain the nature of the cumulative processes. Some considered various versions of multinucleon (multiquark) systems - fluctons, while others believed that nuclei contain point like nucleons with large relative momenta located at short distances (for example, short-range correlations - SRC). This report presents the nowadays situation of the cumulative process studies.

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