Contribution ID: **45** Type: **Oral talk (15 min + 5 min questions)**

DEVELOPMENT OF A NON-EQUILIBRIUM HYDRODYNAMIC APPROACH TO DESCRIBING THE EMISSION OF HIGH-ENERGY SECONDARY PARTICLES IN COLLISIONS OF HEAVY IONS OF INTERMEDIATE ENERGIES

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A.T. D'yachenko[1,2], I. A. Mitropolsky[2]
[1] *Emperor Alexander I Petersburg State Transport University, St. Petersburg, Russia*;
[2] *B.P. Konstantinov Petersburg Nuclear Physics, Institute, National Research Center "Kurchatov Institute", Gatchina, Russia*
E-mail: dyachenko_a@mail.ru

Developing the hydrodynamic approach in describing collisions of heavy ions of intermediate energies [1-6], we proposed to solve the kinetic equation together with the solution of the equations of hydrodynamics [2,3]. This made it possible to successfully describe the double differential cross sections for the emission of protons and pions in collisions of medium-energy heavy ions [2, 3]. We also managed to completely describe the spectra of protons, pions, and photons for the collision of carbon nuclei with a beryllium target in the energy range of 0.3–3.2 GeV per nucleon, obtained in the ITEP experiments [7, 8]. When describing these spectra, the correction for the microcanonical distribution [4, 5] was taken into account, and the contribution of the fragmentation process was also taken into account for the proton yields [6].

The contribution of the effects of short-range correlations SRC, which has recently received much attention [9], was also studied by us. As a result, it turned out that these effects are included in our approach, since we successfully describe the experimental data on the spectra of hard photons [10], which are described in [9] with the addition of a high-momentum component. Our approach is applicable to collisions of both light and heavy nuclei, which can be seen from a comparison of the description of the proton distributions in transverse momentum in the Au+Au reaction at an energy of 1.48 GeV per nucleon with experimental data and other theoretical approaches based on solving the Boltzmann equation, the quantum model molecular dynamics, etc. [11]. This can be extended to the energy range of the reptile complex NICA located at JINR (Dubna).

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The speaker is a student or young scientist

No

Section

1. Intermediate and high energies, heavy ion collisions

Primary author: Prof. DYACHENKO, Alexander (Petersburg State Transport University)

Presenter: Prof. DYACHENKO, Alexander (Petersburg State Transport University)

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