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## On fragment spectra, Hubble law and polarization of emitted secondary particles in a hydrodynamic model for describing high-energy heavy ion collisions

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A.T. D'yachenko<sup>1,2</sup>

<sup>1</sup> *B.P. Konstantinov Petersburg Nuclear Physics Institute of National Research Center "Kurchatov Institute", Gatchina, Russia*

<sup>2</sup> *Emperor Alexander I Petersburg State Transport University, St. Petersburg, Russia*

Based on the nonequilibrium hydrodynamic approach [1,2], double differential cross sections for the spectra of light fragments emitted in the FRAGM (ITEP) experiment [3,4] in collisions of carbon nuclei with a beryllium target at energies of 300 and 950 MeV/nucleon are described. To describe the fragment yield, the coalescence model [5,6] was used taking into account the Goldhaber factorization [7]

In the nonequilibrium hydrodynamic approach at high energies of colliding heavy ions, the Hubble law for the resulting fireball during its expansion was studied and in this approximation agreement with the results of calculations using the PHSD model [8] was obtained.

Taking the Hubble law as a basis, in the next approximation within the framework of hydrodynamics, the average vorticity was found and the polarization of the emitted particles in collisions of gold nuclei at an energy of GeV/nucleon was estimated. For the impact parameter fm, the polarization turned out to be about 5%, which is in agreement with the experimental data of the STAR collaboration for hyperons and calculations using the PHSD model [8]. This may be of interest for future experiments at the NICA collider

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**Primary author(s)** : DYACHENKO, Alexander (Petersburg State Transport University)

**Presenter(s)** : DYACHENKO, Alexander (Petersburg State Transport University)

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