Contribution ID: **3** Type: **Talk**

Detector and physics simulation using heavy ion collisions at NICA-SPD

Thursday 18 April 2024 19:00 (15 minutes)

The space-time picture of hadron formation in high-energy collisions with nuclear targets is still poorly known. The tests of hadron formation was suggested for the 1st stage of SPD running. They will require measuring π± & p± spectra with precision better than 10%. A research has been carried out to check feasibility of such studies at SPD. In this work, C-C and Ca–Ca heavy ion collisions at COM energy of 11 AGeV were simulated using the SMASH. Firstly, the generator-level events were studied. The distribution of track multiplicities and momentum spectra of different types of charged particles were obtained. Secondly, the generated events passed through the full reconstruction using the SpdRoot framework. At this stage particles were identified using dE/dx measurement and TOF information. It allowed us to estimate charge track multiplicities in the tracking system and purities of charge particles spectra. The results on multiplicity are important to estimate occupancies in the tracking system, while the results on π± & p± spectra show that PID should be acceptable for validation of hadron formation models. This is the 1st study of moderate ion collisions for the SPD Collaboration.

Field

Physics and Astronomy

Length

Long 20 min

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