Contribution ID: **124** Type: **20 min.**

Charmed particle production in nucleus-nucleus interactions in Geant4 FTF model

Friday 19 September 2025 10:50 (20 minutes)

Some predictions on D-meson production in soft proton+proton, 2H+2H and 4He+4He interactions at √S=10 and 20 GeV are given for future SPD/NICA experiment using Geant4 FTF model. Essential details of implementation of charmed particle production in the FTF model are considered. Results of model calculations of kinematical properties of the particles produced in hadron-hadron interactions in a comparison with corresponding experimental data are presented.
Recently, the NA61/SHINE collaboration has published preliminary experimental data on D0 and anti-D0 meson production in central Xe+La interactions at √S=16.8 GeV. The collaboration has compared the data on charmed particle production with predictions of various Monte Carlo models. It turned out that none of the models described the experimental data. To check the FTF model, we have compared the model calculations with the NA61/SHINE experimental data. We show Geant4 FTF model prediction for D0 and anti-D0 meson production is close to other model predictions (without QGP formation) and below the experimental data. We believe that the experimental results show enhanced production of charmed particles in nucleus-nucleus interactions.

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Session Classification: Dynamics of multiparticle production

Track Classification: Dynamics of multiparticle production