

PWG3: Femtoscopy project

Aim of the project:

Study of collective effects and dynamics of quark-hadron phase transitions via femtoscopic correlations of hadrons and factorial moments of particle multiplicity at NICA energies

Goals:

- Development of the data analysis methods and software that will be integrated in the Multi-Purpose Detector (MPD) software environment
- Analysis of the simulated with different event generators (in particular, UrQMD and vHLLE) Au+Au collisions at NICA energies
- Study the dependence of femtoscopic radii and scaled factorial moments of particle multiplicity on the initial conditions and properties of nuclear matter equation of state

Plans for 2019:

- Simulation of Au+Au collisions with UrQMD and vHLLE+UrQMD models for different collision energies
- Software development for:
 - Femtoscopic analyses
 - Factorial moments of multiplicity distributions
- Femtoscopic analysis (at one collision energy) and extraction of source functions for pions and kaons for models with different Equation of State (EoS): first-order phase transition (1PT), crossover (XPT), no phase transition.
- Investigation of the detector effects (track-merging and track-splitting in TPC) on femtoscopic measurements