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Beam energy scan using a viscous hydro+cascade model

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We employ the up-to-date version of viscous Hydro-Kinetic Model (vHKM) based on 3+1D viscous hydrodynamic code coupled to UrQMD hadron cascade.

Following the experimental program at BNL RHIC, we perform a similar “energy scan” in the model, and study the collision energy dependence of charged and identified hadron spectra, flow coefficients and femtoscopic radii. For this aim the equation of state for finite baryon density from Chiral model coupled to Polyakov loop is employed for hydrodynamic stage. 3D initial conditions from UrQMD model are used to study gradual deviation from boost-invariant picture for midrapidity interval justified for top RHIC energies and above.

In particular, we address the question, how far down in the collision energy the well-established at RHIC and LHC energies picture of (viscous) hydro+cascade can be applied at BES. Based on the constraints from the NA49/CERES data the model may also be used to provide the predictions for the measurements in RHIC BES program.

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