Expansion of a plasma based on the Nambp-Jona-Lasinio Lagrangian

The study of the properties of the quark gluon plasma (QGP) at finite baryon chemical potential is one of the primary goals of the upcoming facilities at FAIR and NICA. Models predict that at finite chemical potential the phase transition between the partonic and hadronic world is of first order.If calculated beyond mean field level (arXiv:1601.01706) the Polyakov Nambu Jona-Lasinio Lagrangian (with parameters fixed by vacuum masses and decay constants) gives an equation of state at zero chemical potential which comes close to that of the lattice gauge calculations and shows a first order phase transition for finite baryon chemical potentials. Based on this Lagrangian we developed a transport theory (Phys.Rev. C87 034912) to study the expanding plasma at final chemical potential. Elastic and hadronisation cross sections are obtained from the Lagrangian without any new parameters. We compare the results of our approach with that of other transport theories for RHIC energies, report on how the cross sections and masses change as a function of the chemical potential and discuss how the expanding system passes over the phase transition.

I intend to submit my contribution for the proceedings

Yes

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