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# Bulk Viscosity of Hadronic Matter from a Microscopic Transport Model

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Ultra-relativistic heavy-ion collisions at RHIC are thought to have created a Quark-Gluon-Plasma (QGP) with a very low shear viscosity in the deconfined phase. However, as the QGP hadronizes it will evolve through a hadronic phase with rapidly increasing shear viscosity. In order to fully characterize the QGP state, one has to separately determine the viscosity of the hadronic phase. Although many approaches have been used to determine the shear viscosity coefficient and the associated shear viscosity to entropy density ratio ($\frac{\eta}{s}$) in the hadronic phase, much is unknown regarding the bulk viscosity to shear viscosity coefficient ($\frac{\zeta}{s}$) in the hadronic phase. We present preliminary results of a calculation of the bulk viscosity $\zeta$ and the bulk viscosity to entropy density ratio $\frac{\zeta}{s}$ for hot hadronic matter. The Ultrarelativistic Quantum Molecular Dynamics (UrQMD) model is used to simulate the hadronic medium and periodic boundary conditions are used to simulate infinite hot equilibriated hadronic matter. The Green-Kubo formalism is employed and a comparison is made with the results of the bulk viscosity calculation from the Simulating Many Accelerated Strongly Interacting Hadrons (SMASH) model from [1].
[1] J.B Rose et al 2021 J. Phys. G: Nucl. Part. Phys. 48 015005

## Category

Theory

## Collaboration (if applicable)

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