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A new hydrodynamic model using an exact Riemann solver

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Hydrodynamic modeling of quark-gluon plasma requires sophisticated numerical schemes that have low numerical viscosity and are able to cope with high gradients of energy density that may appear in initial conditions. We propose to use the Godunov method with an exact Riemann solver for ideal hydrodynamic modeling to meet these conditions. We present the results of numerical tests of the method, such as the sound wave propagation and the shock tube problem, which show both high precision of the method and low numerical viscosity.

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