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vHLE, a code for hydrodynamic modelling of relativistic heavy ion collisions

vHLE solves the equations of relativistic viscous hydrodynamics in 3+1 dimensions using Israel-Stewart framework. In addition to energy and momentum, charge densities are explicitly propagated and included in the equation of state, making the code suitable for simulations of matter expansion with finite baryon density. With the help of ideal-viscous splitting, we keep the ability to solve the equations of ideal hydrodynamics in the limit of zero viscosities using a Godunov-type algorithm. Milne coordinates are used to treat the predominant expansion in longitudinal (beam) direction effectively.

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