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Baryon number fluctuations around an expanding Bjorken background

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Baryon number density perturbations could provide a possibility to access baryon number susceptibilities and the heat conductivity of a quark gluon plasma. We use a background-fluctuation splitting and a Bessel-Fourier decomposition for the fluctuating part of the fluid dynamical fields with respect to the azimuthal angle, the radius in the transverse plane and rapidity. We examine how the time evolution of linear perturbations depends on the equation of state as well as on shear viscosity, bulk viscosity and heat conductivity for modes with different azimuthal, radial and rapidity wave numbers. Finally we discuss how this information is accessible to experiments in terms of the transverse and rapidity dependence of the net baryon number correlation function (baryon minus anti-baryon) in high energy nuclear collisions.

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