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Influence of magnetic field-induced anisotropic gluon pressure during pre-equilibrium

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Magnetic fields of a large intensity can be generated in peripheral high-energy heavy-ion collisions. Although the intensity drops down fast and, moreover, it is not clear whether the fields last long enough to induce a magnetization during the quark-gluon plasma phase, most of the models and simulations predict a significant intensity that lasts up to proper times of order 1 fm after the beginning of the reaction, which is a typical time for the hydrodynamical phase to start. This interval of time is referred to as the pre-equilibrium stage. One can expect that the evolution of the reaction during pre-equilibrium is likely to be influenced by these fields. In this work we adopt a strong field approximation to study the effects of the magnetic field-induced anisotropy in the gluon pressure. We include this anisotropy within the description obtained by means of effective kinetic theory and explore the consequences to reach isotropization at proper times of order 1 fm.

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