



Семинар
"ТЕОРИЯ АДРОННОГО ВЕЩЕСТВА ПРИ ЭКСТРЕМАЛЬНЫХ УСЛОВИЯХ"

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Quark-Gluon Plasma Formation in Heavy Ion Collisions in Holographic Description

Starting from the discovery of QGP in heavy ions collisions at RHIC, a lot of theoretical efforts were applied to describe this phenomena within QCD frameworks. The main problem is that this phenomena is dynamical and in same time essentially nonperturbative. AdS/CFT correspondence, which appeared as a formal duality between the $N = 4$ super Yang-Mills theory and quantum gravity in the AdS background, has become a powerful tool for studying various properties of real physical systems in the strong-coupling limit.

The appearance of the quark-gluon plasma after the heavy-ion collision in dual terms is described as formation of a black hole. We discuss two holographic dual models of thermalization. In the first one colliding ions are described by gravitational shock waves in AdS and the formation of the black hole is provided of the formation of a trapped surface. In the dual language, the multiplicity of the ion collision process is estimated as the area of the trapped surface. The second holographic model for quark-gluon plasma formed in the heavy ion collisions is based on AdS-Vaidya model. Within this model we estimate the thermalization time and its dependence on centrality as well as dethermalization time, related with the freeze-out time.

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