

Influence of electromagnetic fields on small systems

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The recent experimental observations at RHIC and LHC indicate the formation of quark-gluon plasma even in small systems such as proton-nucleus collisions. In the early stage of relativistic heavy ion collisions extremely intense magnetic fields, with a magnitude up to $5\text{--}50\text{ m}_\pi^2$, are produced; in asymmetric collisions, and in proton-induced reactions in particular, not only the magnetic field but also the electric field is very high. Moreover, in asymmetric colliding systems the particle rapidity distributions are strongly asymmetric inside the overlap region. By means of microscopic calculations within the Parton-Hadron-String Dynamics (PHSD) approach we study the distributions of electromagnetic fields in central p+Au collisions and investigate the influence of these fields on final hadronic observables, such as particle distributions and flow harmonics.

Presenter: OLIVA, Lucia (GSI, Darmstadt)