

Modeling soft physics in heavy ion collision experiments: from GeV to TeV energies

Wednesday, May 29, 2024 3:45 PM (12 minutes)

The goal of the presented study is investigation of the properties and evolution dynamics of new forms of matter created in nucleus-nucleus (and nucleon -nucleon with large multiplicity) collisions at high energies varying in the widest relativistic range, from a few GeV up to ten TeV per nucleon pair, within a unified model, describing in detail the full process of matter evolution, including its possible thermalization at the initial phase of collision. The problem of the phase transition between quark-gluon and hadron states of matter, as well as possible existence of the corresponding critical end point is one of the most interesting in this regard. The research will include extending the existing realistic collision model, iHKM (integrated HydroKinetic Model), proven to be successful in description/prediction of the all soft physics results for ultra-high energy collisions, to make it also cover the region of low and intermediate relativistic energies.

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Session Classification: Session VI