

The 133rd HENPIC seminar by Yuuka Kanakubo (Sophia University), Jan. 28, 2021, Thursday, 10:30 am (UTC+8)

Talk title: Dynamical core–corona picture from small to large colliding systems

Speaker: Yuuka Kanakubo, Sophia University

Abstract:

A possibility of quark-gluon plasma (QGP) formation in small colliding systems is implied by various experimental data. Focusing on one of the experimental data, strangeness-enhancement, we investigate this possibility through the dynamical core–corona initialization (DCCI) model.

The core–corona is a two-component picture proposed to study multiplicity/centrality dependence of final hadron yield ratios. Conventionally high-density regions in which the thermalized matter is generated are referred to as core, and low-density regions in which no such thermalization occurs are referred to as corona. Introducing the core–corona picture into the dynamical initialization framework, we demonstrate a dynamical separation of core and corona. In our framework, QGP fluids are generated by traversing partons produced at an initial stage of a nuclear collision. At the end of dynamical separation, the generated medium becomes an initial condition of hydrodynamics (core) and surviving partons (corona) undergo string fragmentation.

In this seminar, I give an overview of concepts and detailed modeling of the DCCI and show results of particle yield ratios as a function of multiplicity in p-p, p-Pb and Pb-Pb collisions. I report there is a possibility of partial QGP formation even in p-p collisions with $\eta_{ch}/\sim 10$.

Self-introduction:

Yuuka Kanakubo, Ph.D. student at Sophia University in Tokyo, Japan. Master's degree at Sophia University in 2019 under Prof. Tetsufumi Hirano. Awarded “Nuclear Physics A Elsevier Young Scientist Awards” at Quark Matter 2019. One of the main interests is to develop a unified framework to investigate various observables from small to large colliding systems.

Presenter: Ms KANAKUBO, Yuuka (Sophia University)