



Baryon number transport, strangeness conservation and Ω -hadron correlations

Tuesday 14 June 2022 11:30 (20 minutes)

We will present model studies of dynamics of baryon number transport, strangeness conservation and their manifestation in Ω -hadron correlations. Although strange quarks are produced in $s\bar{s}$ pairs, the ratio of Ω^- to $\bar{\Omega}^+$ is greater than one in heavy-ion collisions at RHIC. Thus the produced Ω hyperons must carry net baryon quantum numbers from the colliding nuclei. We will present results of $\Omega^- - K^\pm$, $\bar{\Omega}^+ - K^\pm$, $\Omega^- - \bar{\Xi}$ and $\bar{\Omega}^+ - \Xi$ correlations from model simulations of Au+Au collisions at $\sqrt{s_{NN}} = 200$ GeV and 14.6 GeV. These correlations can probe dynamics for baryon number transport to mid-rapidities at these two beam energies. In addition, we use AMPT (default and string-melting modes) and UrQMD models to illustrate how hadronization schemes of quark coalescence and string fragmentations could leave imprints on such correlations. Implications on the experimental program to measure these correlations with the STAR experiment at RHIC will also be discussed.

Present via

Online

Primary author: WU, Xiatong (Department of Physics and Astronomy, University of California, Los Angeles, CA 90095, USA)

Co-authors: DONG, Weijie (Key Laboratory of Nuclear Physics and Ion-beam Application, Fudan University, Shanghai, China); YU, Xiaozhou (Key Laboratory of Nuclear Physics and Ion-beam Application, Fudan University, Shanghai, China); LI, Hui (Key Laboratory of Nuclear Physics and Ion-beam Application, Fudan University, Shanghai, China); Dr WANG, Gang (Department of Physics and Astronomy, University of California, Los Angeles, CA 90095, USA); Prof. HUANG, Huan Zhong (Department of Physics and Astronomy, University of California, Los Angeles, CA 90095, USA; Key Laboratory of Nuclear Physics and Ion-beam Application, Fudan University, Shanghai, China)

Presenters: WU, Xiatong (Department of Physics and Astronomy, University of California, Los Angeles, CA 90095, USA); WU, XIATONG

Session Classification: PA-Light-flavor and Strangeness

Track Classification: Light-flavor and Strangeness