The 22nd International Conference on
Strangeness in Quark Matter
22-27 March, 2026, Los Angeles, CA

Contribution ID: **226** Type: **Oral Presentation**

Probing Baryon Number Transport and Strangeness Production Dynamics with Hyperon-kaon Correlations

Wednesday, 25 March 2026 09:45 (20 minutes)

The baryon number transport from beam rapidity to mid-rapidity has been observed from the detection of an excess of hyperons over anti-hyperons numbers around mid-rapidity in nuclear collisions at RHIC energies. To understand the dynamics of the baryon number transport over a large rapidity gap, the gluon junction model, which suggest the Y-shaped gluonic junction in proton and neutron may carry the baryon number, has recently drawn considerable attention as a potential explanation. Since the Hyperons will be produced with Kaons simultaneously due to the strangness conservation, their correlation provide a particularly sensitive observable for probing the underlying dynamics. In this work, we analyze hyperon–kaon correlation patterns in p+Au collisions at 39 and 62 GeV using the AMPT and UrQMD transport models. The effects of strangeness conservation and baryon number transport are examined in detail, and the resulting model predictions are proposed as a reference baseline for forthcoming experimental investigations

Author: PING, Siyuan (Fudan University)

Co-authors: WANG, Gang (UCLA); Dr MA, Long (Fudan University); YU, Xiaozhou; WU, Xiatong (UCLA); HUANG, huan

Presenter: PING, Siyuan (Fudan University)

Session Classification: Parallel VI: Correlations