



Contribution ID: 372

Type: **Parallel Talk**

Importance of initial and final state effects for azimuthal correlations in p+Pb collisions

Tuesday, 15 May 2018 15:00 (20 minutes)

We investigate the relative importance of initial and final state effects on azimuthal correlations in low and high multiplicity p+Pb collisions at LHC energies. By matching the classical Yang-Mills dynamics of pre-equilibrium gluon fields (IP-GLASMA) to a perturbative QCD based parton cascade for the final state evolution (BAMPS) on an event-by-event basis, we find that signatures of both the initial state correlations and final state interactions are seen in azimuthal correlation observables, such as $v_2\{2PC\}(p_T)$, with their relative strength depending on the event multiplicity and transverse momentum. Initial state correlations dominate elliptic flow in low multiplicity events for transverse momenta $p_T > 2$ GeV. While final state interactions are dominant in high multiplicity events and at low momenta, we find that initial state correlations strongly affect $v_2\{2PC\}(p_T)$ for $p_T > 2$ GeV as well as the pT integrated $v_2\{2PC\}$. By carrying out a systematic multiplicity scan, we can also probe the dynamics on the border of initial state dominated to final state dominated - but not yet fully developed hydrodynamic - regime. We predict at which multiplicity and transverse momentum many-body QCD effects in the initial state can be experimentally unveiled.

Reference: Greif, Greiner, Schenke, Schlichting, Xu: Phys. Rev. D 96, 091504, 2017

Content type

Theory

Collaboration

Centralised submission by Collaboration

Presenter name already specified

Primary authors: GREIF, Moritz (University of Frankfurt); SCHLICHTING, Soeren (University of Washington); SCHENKE, Bjoern (Brookhaven National Lab); GREINER, Carsten (University of Frankfurt); XU, Zhe

Presenter: GREIF, Moritz (University of Frankfurt)

Session Classification: Collectivity in small systems

Track Classification: Collectivity in small systems