Contribution ID: **93** Type: **Oral**

The (3+1)D structure of the dilute Glasma

I will discuss the (3+1)D structure of the Glasma [1] in the dilute approximation, a semi-analytic framework for the computation of rapidity-dependent early-time observables in relativistic heavy-ion collisions. Based on the Color Glass Condensate effective field theory, where the gluonic interactions between the large Bjorken-x, static sources localized in the colliding nuclei are described by classical Yang-Mills equations, I will present remarkably simple, analytic solutions for the Glasma field strength tensor by linearizing the Yang-Mills equations for weak sources. I will discuss our results for Pb+Pb collisions at LHC and Au+Au collisions at RHIC energies using a generalized three-dimensional McLerran-Venugopalan nuclear model with parametrized longitudinal correlations inside the nucleus. I will also discuss pA collisions using an advanced nuclear model with individual quark hot spots focusing on rapidity-dependent factorization breakdown and event plane fluctuations.

[1] Ipp, A., Leuthner, M., Müller, D. I., Schlichting, S., Schmidt, K., & Singh, P.
Energy-momentum tensor of the dilute (3+1)D Glasma. [Phys.Rev.D 109 (2024) 9, 094040]

Category

Theory

Collaboration (if applicable)

Primary authors: IPP, Andreas; Dr MUELLER, David (TU Wien); SCHMIDT, Kayran; LEUTHNER, Markus; SINGH, Pragya; Prof. SCHLICHTING, Soeren (Universität Bielefeld)

Presenter: SCHMIDT, Kayran

Track Classification: Initial state of hadronic and electron-ion collisions & nuclear structure