Contribution ID: **89**   Type: **Oral**

Charged particle multiplicity in pp-collisions from the dilute Glasma

Wednesday 21 August 2024 17:30 (20 minutes)

We develop the (3+1)D dilute Glasma approximation [1], a semi-analytic framework for the computation of rapidity-dependent early-time observables in relativistic proton and ion collisions. Going beyond the boost-invariant approximation, we take the three-dimensional distribution of color charges within nucleons and nuclei into account. Specifically, we find a simple analytic expression for the Yang-Mills field strength tensor of the Glasma. In contrast to classical lattice simulations, our approach allows for the efficient computation of energy and momentum densities of the Glasma using Monte Carlo integration. In this contribution, I present our study of proton collisions considering different models with and without individual quark hot spots and allowing for fluctuations in the saturation momentum. The obtained energy density is mapped to charged-particle multiplicity and compared to experimental data in order to constrain the model parameters. This paves the way for future (3+1)D simulations of pA- and AA-collisions in the dilute Glasma framework.

[1] Ipp, A., Leuthner, M., Müller, D. I., Schlichting, S., Schmidt, K., & Singh, P.
Energy-momentum tensor of the dilute (3+1)D Glasma [2401.10320]

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

Presenter: LEUTHNER, Markus

Session Classification: Deconfinement

Track Classification: D: Deconfinement