Contribution ID: **827** Type: **Poster**

Initializing BSQ with Open-Source ICCING

Wednesday, 6 April 2022 18:38 (4 minutes)

While it is well known that there is a significant amount of conserved charges in the initial state of nuclear collisions, the production of these due to gluon splitting has yet to be thoroughly investigated. The ICCING (Initial Conserved Charges in Nuclear Geometry) algorithm reconstructs these quark distributions, providing conserved strange, baryon, and electric charges, by sampling a given model for the $g \to q\bar{q}$ splitting function over the initial energy density, which is valid at top collider energies, even when $\mu_B = 0$. The ICCING algorithm includes fluctuations in the gluon longitudinal momenta, a structure that supports the implementation of dynamical processes, and the c++ version is now open-source. A full analysis of parameter choices on the model has been done to quantify the effect these have on the underlying physics. We find there is a sustained difference across the different charges that indicates sensitivity to hot spot geometry.

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Session Classification: Poster Session 2 T01

Track Classification: Initial state physics and approach to thermal equilibrium