

Nuclear Lunch Q. Discussions

Title: Evidence for Nonlinear Gluon Effects in QCD and Their Mass Number Dependence at STAR

paper presenter: Justin Bryan
paper moderator: Shyam Chauhan

Wednesday, October 5, 2022

1. What are Pomerons? Could you explain what research has been done to find these particles? Do you think, they will ever find these exotic particles? – **Prasanna**
2. Explain the Color-Glass-Condensate framework [Ref. 23-25]/theory which was briefly discussed during the presentation. It mentions the gluon splittings. Where these extra gluons come from, and after saturation what is the state of the partons? – **Joseph Foy**
3. The paper [in Refs. 1-4] mentions suppression of hadron yields in d+Au as compared to p+p in inclusive production. What are the mechanisms by which these suppressions occur as described by these references? – **Bradley McClung**
4. Explain how the FMS Calorimeter is used to take data in the experiment. FMS is also used here as a trigger system, could you explain that part as well? – **Michael Jeswald**
5. What is the GBM Model? What does it predicts about the saturation scale Q_s ? Does the experiment verified what the GBM model predicted? – **Joseph Derkin**
6. Explain about the correlation function $C(\Delta\phi)$, and what is it used to show in the paper. – **Andrius**
7. What exactly is non-linear that this paper is trying to describe? What does the regime of nonlinear QCD dynamics contribute to our basic understanding of QCD and in general nuclear physics? Would non-linear observations directly affect any theories derived from QCD? - **Chirag**