



XXIV QUARK MATTER DARMSTADT 2014

Contribution ID: 524

Type: Poster

Title: The centrality dependence of jet and leading particle production in d-Au and p-Pb collisions

Tuesday, 20 May 2014 16:30 (2 hours)

We take a detailed look at high transverse momentum (high p_T) particle and jet production in d-Au collisions at RHIC and p-Pb collision at LHC. In particular, we study the correlation between jet production and the number of charged particles produced, which allows collisions to be binned in centrality. While Hulthen distributions are used to sample the spatial distribution of nucleons in deuteron, nucleon distributions within the larger nucleus are sampled from either correlation-free Woods-Saxon or shell model distributions with nucleon-nucleon correlations. The collision of a nucleon from the deuteron with a column of nucleons in the nucleus is carried out by modifying the PYTHIA event generator. Two methods are presented: one retains exact isospin conservation (prior to weak decays) by tracking each nucleon-nucleon collision and another with exact energy conservation where the energy of a column of N nucleons is incorporated within a single "super" nucleon by enhancing the parton distribution functions by N . In either case, the energy lost in the production of the jet pair is taken into account exactly. Both methods also include a new implementation of a transverse density dependent event-by-event shadowing. The results for high p_T particle production, binned in centrality by the number of charged particles produced, is compared with experimental results from PHENIX on high- p_T neutral pion production in d-Au collisions, with a focus on the observed enhancement in peripheral collisions.

On behalf of collaboration:

None

Primary author: KORDELL, Michael (W)

Co-author: MAJUMDER, Abhijit (Wayne state university)

Presenter: KORDELL, Michael (W)

Session Classification: Poster session

Track Classification: Jets