11th International Conference on Hard and Electromagnetic Probes of High-Energy Nuclear Collisions



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Typ: Talk

Measurements of the azimuthal anisotropy of jets and high- p_T charged particles in Pb+Pb collisions with the ATLAS detector

Dienstag, 28. März 2023 15:00 (20 Minuten)

The heavy-ion collisions produce a hot, dense medium, and high-momentum partons from the collision traverse this medium while losing energy to it. This talk presents new measurements of the azimuthal dependence with respect to the event plane of single jet yields and high momentum charged particles yields in Pb+Pb collisions at $\sqrt{s_{NN}} = 5.02$ TeV. As the distance traversed by the partons in the medium is dependent on the angle with respect to the event plane at which the partons are produced, these measurements give insight into the path-length dependence of parton energy loss. The magnitude of angular modulation is quantified by the parameter v_n with respect to the n^{th} order event plane. In this talk we will present these two measurements that show v_2 , v_3 , and v_4 as a function of p_T and collision centrality. In both measurements, a non-zero value of v_2 and v_3 are observed, suggesting that fluctuations in the initial state play a small but distinct role in jet energy loss. Both measurements explore a higher transverse momentum regime and higher-order harmonics than current measurements benefiting from the high statistics 2018 Pb+Pb heavy ion data recorded by ATLAS. These measurements provide new information about the path-length dependence of jet quenching.

Experiment/Theory

ATLAS

Affiliation

ATLAS Collaboration

Hauptautor: WANG, Xiaoning (University of Illinois Urbana-Champaign)Vortragende(r): WANG, Xiaoning (University of Illinois Urbana-Champaign)Sitzung Einordnung: Parallel: Jets and their modification in QCD Matter

Track Klassifizierung: Jets and their modification in QCD matter