

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



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Typ: Talk

## Strong constraints on jet modification in centrality-dependent p+Pb collisions by ATLAS

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Small systems such as pp or p+Pb collisions exhibit evidence of collective behavior strikingly similar to that in Pb+Pb collisions. However, while jet quenching is readily observed in Pb+Pb collisions, no evidence has been found in small systems to date, raising fundamental questions about the nature of the system created in these collisions. This talk reports a measurement by the ATLAS experiment at the LHC which sets new, precise constraints on the possible amount of jet modification in central p+Pb events. To avoid possible biases on the centrality classification of p+Pb events, the collision centrality is categorized by the energy deposited by forward neutrons from the struck nucleus in the Zero Degree Calorimeter (ZDC). The measurement reports the yield of charged hadrons near and opposite in azimuth to reconstructed jets in p+Pb and pp collisions at 5.02 TeV. The ratio between p+Pb and pp, called the  $I_{pPb}$ , is consistent with unity within a few percent for hadrons with  $p_T > 4$  GeV at all centralities. These data provide new, strong constraints and can be used to set a quantitative limit on jet modification in central p+Pb collisions within a simple model.

### Experiment/Theory

ATLAS

### Affiliation

ATLAS Collaboration

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**Sitzung Einordnung:** Parallel: Jets and their modification in QCD Matter

**Track Klassifizierung:** Jets and their modification in QCD matter