

# Measurements of heavy-flavor azimuthal correlations and b-jet suppression in 5.02 TeV Pb+Pb collisions with ATLAS

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High energy partons are known to lose energy when passing through the hot and dense medium produced in heavy ion collisions. This energy loss is expected to depend on the mass of the fragmenting parton. For light partons, energy loss via gluon bremsstrahlung is expected to dominate, while for heavy-quarks, collisional energy loss may play a more important role. Comparisons between the suppression b-jets and inclusive jets are therefore needed to understand the impact of parton mass on the energy loss. An alternative method for probing the interactions of heavy quarks with the plasma is the study of the correlations between heavy quark pairs. In this talk, we also report final results on the measurements of azimuthal angle correlations of muons produced via heavy-flavor decays and results on the b-tagged jet production. The measurements are performed in pp and Pb+Pb collisions at  $\sqrt{s_{NN}} = 5.02$  TeV using the ATLAS detector at the LHC. The measurement of azimuthal angle correlations of muons is performed differentially in centrality for muons with  $|\eta| < 2.4$  and  $p_T > 4$  GeV. Studies of the shapes of the azimuthal-angle correlations between the two muons are performed and compared between pp, Pb+Pb data and MC event generators. The b-jet suppression is evaluated in terms of nuclear modification factor, RAA. A detailed quantification of the differences between the b-jet RAA and the inclusive jet RAA is also provided together with comparisons to theory.

## Category

Experiment

## Collaboration

ATLAS

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