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Study of correlations between neutral bosons and jets in lead-lead collisions at 2.76 TeV with the ATLAS detector

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The correlations of jets with neutral bosons is a particularly powerful tool to probe the underlying physics of jet quenching. To gain insight into the physics of this process we can study Z-jet and gamma-jet correlations. Because the Z and photons do not directly couple to the strong force, in a jet+boson event the unmodified bosons allow us to access the modification of the opposite side jet; unlike dijet events, where both jets potentially lose energy, these bosons provide an excellent calibration of the energy of the recoil jet. The jets are measured in the same calorimeter, over a range of jet radii, and benefit from the detailed information about the shower profile. The ATLAS experiment has measured jet correlations with both direct photons as well as with Z bosons via dilepton channels in Pb+Pb collisions with $\sqrt{s_{NN}}=2.76$ TeV in a data sample of nearly 150 ub^{-1} of integrated luminosity. The measurement of these correlations will be presented.

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