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Charged particle spectra and nuclear modification factor in lead-lead collisions at 2.76 TeV with the ATLAS detector at the LHC.

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The measurement of charged particle spectra in heavy ion collisions is a direct way to study properties of hot and dense matter created in these interactions. The centrality dependence of the spectral shape is an important tool to understand the energy loss mechanism. The ATLAS detector at the LHC accumulated $150\mu\text{b}^{-1}$ of lead-lead data at 2.76 TeV per nucleon-nucleon pair. Due to the excellent capabilities of the ATLAS detector, and its stable operation in 2010 and 2011 heavy ion physics runs, these data allow measurements of the charged particle spectra and their ratios in different centrality bins over a wide range of transverse momenta and pseudorapidity.

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