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Inclusive charged hadron production in lead-lead collisions with the ATLAS detector

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The ATLAS experiment at the Large Hadron Collider measures charged hadron spectra obtained in 2010 and 2011 lead-lead LHC data taking periods with total integrated statistics of 0.15/nb. The results are compared to the pp spectra of charged hadrons at the same centre-of-mass energy, accumulated by ATLAS in 2013 with the integrated luminosity of 4/pb. This allows for a detailed comparison of the two collision systems in a wide transverse momentum ($0.5 < p_T < 150 \text{ GeV}$) and pseudorapidity ($|\eta| < 2$) ranges in different centrality intervals of Pb+Pb collision. The nuclear modification factors RAA and RCP are presented as a function of centrality, p_T and η . They show a distinct p_T -dependence with a pronounced minimum at about 7 GeV. Above 60 GeV, RAA is consistent with a flat, centrality-dependent, value within the uncertainties. The value is $0.55 \pm 0.01(\text{stat.}) \pm 0.04(\text{syst.})$ in the most central collisions. The RAA is observed to be independent of pseudorapidity over the whole transverse momentum range in all centrality classes.

On behalf of collaboration:

ATLAS

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