

Abstract Submitted  
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**Recent results on correlations and fluctuations in pp, p+Pb, and Pb+Pb collisions from the ATLAS Experiment at the LHC<sup>1</sup>** SOUMYA MOHAPATRA, Columbia University, ATLAS COLLABORATION COLLABORATION — The azimuthal anisotropies of particle yields observed in relativistic heavy-ion collisions are traditionally considered as a strong evidence of the formation of a deconfined quark-gluon plasma. However multiple recent measurements in pp and p+Pb systems show similar features as those observed in heavy-ion collisions, indicating the possibility of the production of such a deconfined medium in smaller systems. This talk presents a summary of recent ATLAS measurements in pp and p+Pb collisions. It includes measurements of two-particle hadron-hadron and muon-hadron correlations in pp and p+Pb collisions, with a template fitting procedure used to subtract the dijet contributions. Measurements of multi-particle cumulants  $c_n$ <sup>2-8</sup> are also presented. The standard cumulant measurements confirm presence of collective phenomena in p+Pb collisions, but are biased by non-flow correlations and are not able to provide evidence for collectivity in pp collisions. To address this, measurements from a new sub-event cumulant method that suppresses the contribution of non-flow effects are presented. Recent studies of longitudinal flow decorrelations, and higher-order cumulants in Pb+Pb collisions are also presented, and provide insight into the details of the geometry of the initial state.

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