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Intra-event correlations and the statistical moments of the identified particle multiplicity distributions in the RHIC beam energy scan data collected by STAR[1] W.J. LLOPE, Rice University, STAR COLLABORATION — Specific products of the statistical moments of the multiplicity distributions of identified particles can be directly compared to susceptibility ratios obtained from lattice QCD calculations. They may also diverge for nuclear systems formed close to a possible QCD critical point due to the phenomenon of critical opalescence. Of particular interest are the moments products for net-protons, net-kaons, and net-charge, as these are considered proxies for conserved quantum numbers. The moments products have been measured by the STAR experiment for Au+Au collisions at seven beam energies ranging from 7.7 to 200 GeV. In this presentation, the experimental results are compared to data-based calculations in which the intra-event correlations of the numbers of positive and negative particles are broken by construction. The importance of intra-event correlations to the moments products values for net-protons, net-kaons, and net-charge can thus be evaluated.

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