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Probing proton fluctuations with asymmetric rapidity correlations KEVIN DUSLING, American Physical Society APS, ADAM BZDAK, AGH University of Science and Technology — Intrinsic fluctuations of the proton saturation momentum generate asymmetric rapidity distributions on an event-by-event basis. We argue that the asymmetric component, $\langle a_1^2 \rangle$, of the orthogonal polynomial decomposition of the two-particle rapidity correlation function is a sensitive probe to this distribution of fluctuations. We present a simple model connecting the experimentally measured $\langle a_1^2 \rangle$ to the variance, σ , of the distribution of the logarithm of the proton saturation scale. We find that $\sigma \approx 0.5 - 1$ describes the asymmetric component of the rapidity correlations recently measured by the ATLAS collaboration.

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