

Abstract Submitted  
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**Monte Carlo Simulations of Jet Acoplanarity Broadening in High Multiplicity pp Collisions**<sup>1</sup> CAITLIN BEATTIE, Yale University — While it has traditionally been assumed that small systems (pp, pA) do not generate the QGP, recent searches for jet modification may challenge this assumption. One such study performed by ALICE has examined hadron-jet correlations in pp collisions. Broadening of recoil jet acoplanarity was preliminarily observed in high multiplicity collisions relative to minimum bias data. Interestingly, this result can be replicated by PYTHIA 8, which does not model the QGP. Efforts to understand simulated results have therefore been critical to interpreting this phenomenon. One possible explanation relates to the spatial distribution of leading hadrons and the extent to which they align with their associated jets. Another possibility relates to a selection bias owing to the definition of event activity. Simulations suggest that events tagged as high multiplicity using forward detectors are biased toward multi-jet events, skewing azimuthal distributions when forward jets are neglected. Analyses of PYTHIA 8 simulations will be presented to quantify the extent to which near-side broadening and multi-jet events contribute to acoplanarity broadening. Additionally, changes in the method of event classification will be proposed to minimize the multi-jet bias.

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