

# Quark Matter 2019 - the XXVIIIth International Conference on Ultra-relativistic Nucleus-Nucleus Collisions



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## Probing modification of the initial state in small systems via jets detected in PHENIX

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Previous measurements in small systems indicate that the modifications to jets relative to p+p collisions is small. However, looking at more differential measurements may reveal if any modifications do exist. In particular, we compare  $\pi^0$ -hadron correlations measured with PHENIX in small systems to those observed in p+p collisions to probe any initial state effects. Several systematic uncertainties cancel when comparing the ratio of the away-side yield to the near-side yield in d+Au and  $^3\text{He}+\text{Au}$  systems to p+p revealing a quantifiable modification in these systems. In addition,  $p_{out}$  distributions for the p+A collisions is measured. An increasing trend in the width of the  $p_{out}$  distributions in p+Al and p+Au compared to p+p is observed as a function of  $N_{coll}$ . The potential implications of these measurements in conjunction with the PHENIX results for reconstructed jets in small systems will be discussed.

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