

## Multiplicity and $v_n$ Scaling in Small and Large Systems

Recently, interest in initial state models have increased due to the observation of a “ridge” in small systems (p+p, p+Au, p+Pb, d+Au, p+Pb, etc.). Initial partonic fluctuations in the participant nucleons which comprise small systems, could be important. As a class of candidates, the consequences of constituent quark Glauber models are explored. Multiplicity density is found to scale with the number of quark participants for different systems and centrality's. Eccentricities show a sizable increase in both p+A and A+A systems, when a large (i.e. close to proton charge radius) quark rms radius is used. We argue that the increase in the two types of systems have different origins. The eccentricities are further used to validate acoustic scaling for a broad range of systems (p+p, p+Au, p+Pb, d+Au, p+Pb, etc.) and energies.

### Preferred Track

Correlations and Fluctuations

### Collaboration

Not applicable

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