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The sign change of the four-particle cumulant in small systems from hydrodynamics and momentum conservation

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The azimuthal cumulants, $c_2\{2\}$ and $c_2\{4\}$, originating from the global conservation of transverse momentum [1] in the presence of hydro-like elliptic flow are calculated [2]. We observe a sign change of $c_2\{4\}$ for small number of produced particles, which is in a qualitative agreement with the recent ATLAS measurement of multi-particle azimuthal correlations with the subevent cumulant method [3]. Our results offer a new insight into the problem of the onset of collectivity in small systems.

References

1. Adam Bzdak and Guo-Liang Ma, arXiv: 1710.00653.
2. Adam Bzdak and Guo-Liang Ma, in preparation.
3. The ATLAS Collaboration, arXiv:1708.03559.

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