Strangeness in Quark Matter 2016



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Non-Gaussian elliptic flow fluctuations

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The ATLAS collaboration has accurately measured elliptic flow, v_2 , using multi-particle cumulants [arxiv:1408.4342], and observed for the first time a slight difference between v_2 {4} and v_2 {6}. If the fluctuations of v_2 were Gaussian, all cumulants would coincide beyond order 4 [arXiv:0708.0800] therefore this measurement shows that v_2 fluctuations are slightly non-Gaussian. Elliptic flow is understood as a consequence as the hydrodynamic response to the initial eccentricity ε_2 . Non-Gaussian v_2 fluctuations can be generated by non-Gaussian ε_2 fluctuations or by nonlinearities in the hydrodynamic response. We show that both mechanisms are likely to be important. We carry out event-by-event viscous hydrodynamic simulations and compare our results with ATLAS data.

On behalf of collaboration:

None

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