

Abstract Submitted  
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**Two-particle number and transverse momentum correlations in Au-Au collisions at RHIC**<sup>1</sup> MICHAEL DAUGHERITY, The University of Texas at Austin, STAR COLLABORATION — The related studies of two-particle correlations and event-by-event fluctuations have played important roles in the search for new physics through the experimental study of relativistic heavy ion collisions. We present a general method of determining two-particle correlations and show the relationship between these correlations and event-by-event fluctuations [1]. Data from the STAR experiment at RHIC for Au-Au collisions at  $\sqrt{s_{NN}} = 62$  and 200 GeV will be presented that show the energy and centrality dependences of several correlation measures. Since this analysis method is minimally biased and requires no high- $p_t$  triggers, these results provide unique access for studying the hot, dense medium produced at RHIC, as well as shed new light on the sources of non-statistical fluctuations. [1] J. Adams et al. (STAR Collaboration), nucl-ex/0509030.

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