

Abstract Submitted
for the DAMOP17 Meeting of
The American Physical Society

Density–density correlations and Hawking radiation in ultracold gases YI-HSIEH WANG, Joint Quantum Institute, TED JACOBSON, University of Maryland, MARK EDWARDS, Georgia Southern University, CHARLE W. CLARK, Joint Quantum Institute — We simulate recent experiments on Bose-condensed gases in which the spontaneous production of analog Hawking radiation was inferred from the observation of density–density correlations. Even when the gas sample is a pure Bose-Einstein condensate, we find that such correlations are present in realistic simulations. This is due to the random shot-to-shot variation in the number of atoms in the sample. This simple effect of “sample inhomogeneity” is comparable to that of quantum fluctuations, and is comparable to what is observed in experiments.

Yi-Hsieh Wang
Joint Quantum Institute

Date submitted: 11 Apr 2017

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