

Abstract Submitted
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Momentum Distributions of 1D Bose Gases LIN XIA, JOSHUA M. WILSON, LAURA A. ZUNDEL, WEI XU, MARCOS RIGOL, DAVID S. WEISS, Department of Physics, The Pennsylvania State University, University Park, Pennsylvania 16802, USA — Although the many-body wave functions of 1D Bose gases with δ -function interacting can be exactly calculated, it has been a theoretical challenge to extract their momentum distributions at intermediate coupling strengths. We will present precise measurements of 1D Bose gas momentum distributions in the strong and intermediate coupling regimes, and compare them to new theory calculations. We will emphasize our sensitivity to the predicted p^{-4} tail, and the sensitivity of the results to excitations out of the many-body ground state.

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