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High-Contrast Interference in a Thermal Cloud of Atoms DANIEL MILLER, KAIWEN XU, JITKEE CHIN, YINGMEI LIU, JAMES R. ANGLIN, JAMIL ABO-SHAEER, WOLFGANG KETTERLE, MIT — The coherence properties of a gas of bosonic atoms above the BEC transition temperature were studied. Bragg diffraction was used to create two spatially separated wave packets, which interfere during expansion. Given sufficient expansion time, high fringe contrast could be observed in a cloud of arbitrary temperature. Fringe visibility greater than 90% was observed, which decreased with increasing temperature, in agreement with a simple model. When the sample was "filtered" in momentum space using long, velocity-selective Bragg pulses, the contrast was significantly enhanced in contrast to predictions.

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