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**Producing and detecting correlated atoms in degenerate gases**

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This talk will cover two conceptually simple experiments in which atom correlations have been demonstrated in our laboratory. In the first experiment we reproduced the atomic analog of the celebrated Hanbury Brown and Twiss experiment for photons. Correlations between atoms appear because of a constructive interference between two alternate possibilities for detecting two atoms in two detectors. We are able to reconstruct the two particle correlation function in three dimensions. This interference effect results in an enhanced probability to detect two bosons close together, provide the Bose gas is not degenerate, and a decreased probability to detect two fermions close together. The interference absent for atoms in a Bose-Einstein condensate. We have demonstrated a second type of correlation resulting from the atomic analog of four wave mixing. Two condensates are produced with a well defined relative velocity. Binary collisions (or spontaneous four wave mixing) results in atom pairs with equal and opposite momenta. Interestingly a colinear Hanbury Brown Twiss correlation is also present. We will discuss the data and our progress in their quantitative understanding. The possibility of observing a sub-Poissonian dispersion in the relative number of atoms in opposite directions will be discussed.