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Fermionic Condensates

MARKUS GREINER, JILA (NIST and University of Colorado)

The realization of fermionic superfluidity in a dilute gas of atoms, analogous to superconductivity in metals, is a long-standing goal of ultracold gas research. In my talk I will present experiments where it has become possible to create a condensate of fermionic atom pairs. These pairs are regarded as generalized Cooper pairs in the crossover regime between BCS-type superfluidity and Bose-Einstein condensation (BEC). Beyond providing experimental access to this exciting crossover regime, a gas of ultracold fermionic atoms is a highly controllable system where experimenters can widely vary interactions and study dynamical behaviour. The experiments therefore open the intriguing possibility to address fundamental questions of modern solid state physics with an atomic physics system.