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Fermi condensates

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A gas of fermionic atoms is cooled down to ultralow temperatures to achieve a quantum degenerate Fermi gas. Remarkably, the interactions between atoms in this gas can be controlled experimentally. By tuning the interactions to be very strong and effectively attractive we have created and observed Fermi condensates. These condensates involve pairing of atoms, much like Cooper pairs of electrons in a superconductor. Because the interaction strength in the Fermi gas can be varied, this system provides unique experimental access to the connection between Bose-Einstein condensation and Fermi superfluidity.