

How ultracold atoms scatter light

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Scattering of light is one of the most elementary processes for atoms and is discussed in many textbooks. We have performed several light scattering experiments which reveal fundamental quantum aspects. At ultralow temperatures, light scattering is suppressed or enhanced by Pauli blocking and bosonic stimulation, respectively. Light scattering can distinguish a superfluid from a Mott insulator. Finally, we have experimentally investigated whether light is coherent and incoherent when scattered by single atoms.