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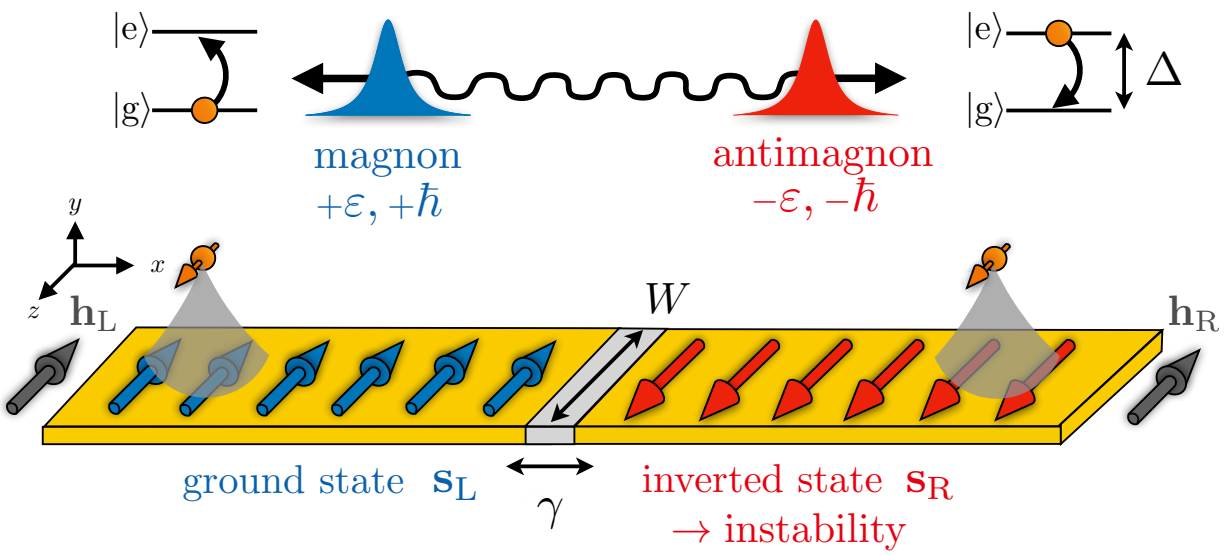
Sondertermin

Entangling Color Centers via Magnon-Antimagnon Pair Creation

Dr. Eric Kleinherbers

UCLA, USA



We present how entanglement between a spatially separated pair of color centers can be created by letting them weakly interact with the quantum fluctuations of a nonequilibrium magnetic environment. To this end, we consider two coupled ferromagnets, one in the ground state and one in an inverted state with respect to an applied magnetic field. The resulting energetic instability leads to a quantum spin current in the vacuum state that is sustained by the creation of magnon-antimagnon pairs at the interface. We show that these quantum fluctuations imprint a steady-state entanglement onto the two dipole-coupled color centers through nonlocal dissipation. We derive conditions for establishing a maximally entangled Bell state. This entanglement is absent in thermal equilibrium.