

Stuttgarter Physikalisches Kolloquium

Fachbereich Physik, Universität Stuttgart
Max-Planck-Institut für Festkörperforschung
Max-Planck-Institut für Intelligente Systeme

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Universität Stuttgart, Pfaffenwaldring 57, 70569 Stuttgart-Vaihingen

Gastgeber: Prof. Tilman Pfau, Universität Stuttgart, Telefon: 0711 - 685-68025

Quantum Coherent Networks

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Abstract

Single particles in optical resonators constitute universal and efficient nodes of quantum coherent networks for large-scale quantum information processing. Using atoms as emitters and receivers, atomic states have been transferred and teleported over long distances, remote atoms have been entangled, optical photons have been detected nondestructively, and quantum gates have been implemented between flying photons and stationary atoms. Similar experiments with artificial atoms have now been started in many laboratories around the globe.