Karlsruher Institut für Technologie

Fakultät für Physik

Physikalisches Kolloquium

Christoph Becher, Universität des Saarlandes

»Nonlinear optics with single photons: interfacing single atoms with single telecom photons«

Einführung: H. Kalt

In a future quantum network, remote nodes containing stationary quantum bits (qubits) or quantum memories have to be interconnected by flying qubits, e.g. single photons. For long-range transmission, photons at telecommunication wavelengths offer minimal loss in fibre links. The majority of atomic or atom-like systems (e.g. trapped atoms or ions, semiconductor quantum dots, color centers in diamond etc.) serving as stationary qubits, however, do not offer optical transitions at telecom wavelengths but commonly emit in the visible to near-infrared range. Hence, techniques are necessary to bridge the gap between the near infrared and the telecom spectral regions.
Here, I will present different experiments to interface single emitters such as trapped ions or semiconductor quantum dots with telecom photons, based on quantum frequency conversion of single photons and tailored, narrow-band single photon sources.

Freitag, 26.06.2015, 17 Uhr c.t.,

KIT, Campus Süd,
Otto-Lehmann-Hörsaal, Physik-Flachbau (Geb. 30.22).

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