

Quantum key distribution: squeezed laser for ultrafast quantum communication

Field: Experiment, nonlinear optics, CAD design, control electronics, data acquisition

Motivation: Squeezed light was used by the working group in 2015 to implement device-independent quantum key distribution for the first time. The key generation rate of 50 kHz was limited by the bandwidth of the squeezed light.

Goal: An optically nonlinear resonator is built, which is pumped at 1550 nm and sets a new record for the directly measured squeezing factor over 1 GHz bandwidth. A doctoral position in the SFB1723 (conditional) will be available afterwards.