

Center for Hybrid Quantum Networks Highlights

Hy-Q symposium at the Royal Danish Academy of Science and Letters

Following our opening of Hy-Q September 17, we held a two-day Symposium at the Royal Danish Academy of Science and Letters. The symposium was generously donated by DNRF and was a great opportunity to celebrate our kick-off as a center of excellence for three days. The center's young team of researchers and students got a unique chance to attend talks by and discuss with world-leading international researchers. The scope of the symposium was "Hybrid Approaches to Quantum-Information Processing" defining the core of the research focus of Hy-Q and gathered international experts within solid-state quantum optics, spin physics, and quantum opto-mechanics combining both experiment and theory. The Royal Danish Academy of Science and Letters posed a pleasant historic setting in the middle of Copenhagen for interesting discussions and enjoyable social interaction. The successful symposium provides an excellent platform for extending and establishing exciting scientific collaborations for Hy-Q.



The Royal Danish Academy of Science and Letters posed a pleasant historic setting in the middle of Copenhagen for interesting discussions and enjoyable social interaction. The successful symposium provides an excellent platform for extending and establishing exciting scientific collaborations for Hy-Q.

Research highlights in 2018

Very significant scientific progress has been achieved on the various Hy-Q platforms in 2018 and our visions and ideas for interfacing have been further developed. Specific highlights include the demonstration of measurement-based quantum control of a high-quality mechanical oscillator (Nature 2018); the demonstration of a photon switch controlled by a single spin in a quantum dot (Nature Nanotechnology 2018); a full theory of decoherence of quantum dots in nanophotonic structures leading a path-way to scaling-up the sources (Physical Review Letters 2018); and the proposal of quantum nondemolition measurements of mechanical motion (Nature Communications 2018).

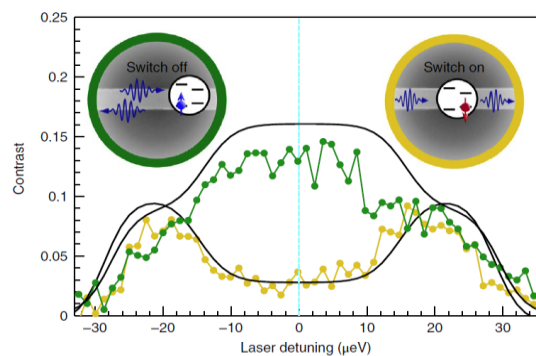


Figure: Experimental demonstration that a single spin pointing either up or down can control a pulse of light to be reflected or transmitted.

The EU Flagship in Quantum Technology

In 2018 the 1 bill. € EU Flagship on Quantum Technology entered the ramp up phase. We are excited to be partners in the [Quantum Internet Alliance](#). Here we will seek to further develop Hy-Q quantum hardware to be deployed in a quantum communication network.