

## PhD fellow in Theoretical Quantum Optics/Quantum Information

Mon, 2018-04-30 18:15 - [Anders Sorensen](#) [1] **At:** The Niels Bohr Institute, University of Copenhagen

**Deadline:** 24 May, 2018

### Location

The Niels Bohr Institute, University of Copenhagen Blegdamsvej 17  
Copenhagen 2100 Denmark

55° 41' 48.5412" N, 12° 34' 17.6016" E

See map: [findvej.dk](#) [2], [Rejseplanen](#) [3]

### Description of the scientific environment

The position will be embedded in the theoretical quantum optics group headed by Prof. Anders S. Sørensen ([www.tqo.dk](#) [4]). The group is focusing on making theories for the implementation of quantum information processing in concrete physical systems, including quantum optical systems such as photons and atoms, as well as solid-state systems such as quantum dots and superconducting qubits. The Ph.D. project will be part of the newly established Center for Hybrid Quantum Networks (Hy-Q). The center is a 6 year major research initiative aiming at creating a quantum internet by exploiting quantum dots and opto-mechanical systems. The center is a collaboration between the theoretical quantum optics group and the groups of Prof. Peter Lodahl ([www.quantum-photonics.dk](#) [5]) and Prof. Albert Schliesser ([www.nbi.dk/~aschlies/research.html](#) [6]). In total the center employs approximately 50 scientists working on quantum networks.

### Project description

The goal of the project will be to support and complement the activities of the Hy-Q research center. To this end the successful candidate should both make theories for concrete experiments, which can be performed in the Hy-Q laboratories as well as long-term applications for quantum information processing. The precise project will be defined later but possible topics include

- cluster state generation using quantum dots
- quantum memories using solid-state emitters
- storage of information in mechanical oscillators
- general theory development for quantum networks

Principal supervisor is Anders Søndberg Sørensen, the Niels Bohr Institute, [anders \[dot\] sorensen \[at\] nbi \[dot\] dk](mailto:anders@nbi.dk).

More information available at <http://employment.ku.dk/phd/?show=147168>

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