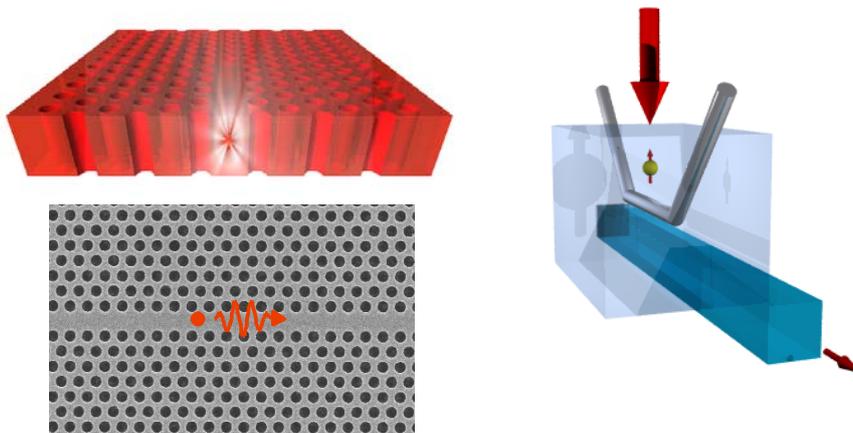


## Two Postdoc Positions on Nanophotonic Single-Photon Sources for Quantum Information

At DTU Photonics, Department of Communications, Optics & Materials ([www.com.dtu.dk](http://www.com.dtu.dk)) we currently have two vacant experimental postdoc positions on quantum dot single-photon sources based on nanophotonic structures.

### Research

We explore the quantum interaction between light and nanostructures in order to harvest and control single-photons with very high efficiency. Two different technologies will be implemented where enhanced light-matter interaction is achieved by coupling single quantum dots to either plasmonic nanowires or photonic crystal waveguides. Our aim is to construct highly efficient and coherent single-photon sources that will be tested in quantum information protocols.



*Left: Photonic crystal waveguide in side-view (upper) and top-view (lower). An excited quantum dot (red dot) emits a single photon, which is directed into the waveguide with very high efficiency. Right: A quantum dot (green dipole) is optically excited (large arrow) and decays into the surface plasmon mode of the nanowire (gray wire). The plasmon is coupled to a nearby waveguide (dark blue waveguide) whereby a single photon can be coupled out in a well-defined direction (small arrow).*

### Job description

The successful candidates will work as part of a research team that consists of about 10 students devoted to solid state quantum photonics. The main focus will be on optical experiments, but some engagement in the fabrication of samples is desirable depending on preferences and qualifications. The candidates are expected to take part in the daily supervision of Ph.D. and M.Sc. students.

### Facilities

We have access to state-of-the-art clean room and optical laboratories for fabrication and characterization of the novel single-photon sources. Our experiments are compared thoroughly with theory in collaboration with the modelling and theory group at COM•DTU.

### Further information

For further information, see P. Lodahl *et al.*, Nature **430**, 654 (2004) or visit the Quantum Photonics Group website: [www.com.dtu.dk/QuantumPhotonics](http://www.com.dtu.dk/QuantumPhotonics). Any questions can be addressed to Associate Professor Peter Lodahl (+45 4525 3807/[pel@com.dtu.dk](mailto:pel@com.dtu.dk)) and information on how to apply can be found at: [www.com.dtu.dk/Nyheder/Jobs.aspx?guid=22071865](http://www.com.dtu.dk/Nyheder/Jobs.aspx?guid=22071865)