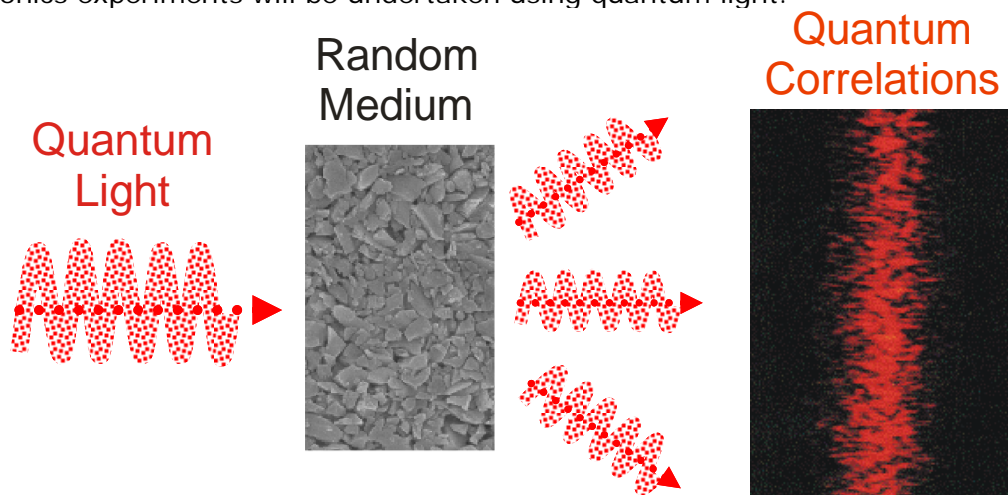


International PhD scholarship Quantum Optics in Nano-Structured Materials

An international PhD scholarship is available in the “Nanophotonics Group” at COM•DTU (Department of Communications, Optics & Materials at the Technical University of Denmark, www.com.dtu.dk) in collaboration with the “Photon Scattering Group” at the Institute for Atomic and Molecular Physics (AMOLF) (www.amolf.nl), Amsterdam, The Netherlands.

The research project concerns experimental studies of multiple scattering of quantum correlated light propagating through nano-structured materials. Multiple scattering of light is an extremely active and interdisciplinary research field that so far has focused on classical optics. When light is scattered many times, the propagation direction is randomized, i.e. the transmitted light becomes uncorrelated. Surprisingly, it was very recently predicted that quantum states of light can be used to induce strong correlations between different propagation directions [1,2]. The aim of the project is to give the first experimental demonstration of this effect using squeezed light. Furthermore, a number of fundamental nanophotonics experiments will be undertaken using quantum light.



The successful candidate will spend 12-18 months at AMOLF, where world-leading expertise on multiple light scattering and nanophotonics is present in the group of prof. A. Lagendijk. The remaining 18-24 months will be at COM•DTU where focus is on quantum optics. At COM•DTU, the PhD student will be embedded in the very active research group on solid state quantum photonics (www.com.dtu.dk/quantumphotonics).

For further information please contact Peter Lodahl, tel: +45 4525 3807, e-mail: pel@com.dtu.dk. Further information about the scholarship and requirements for the application can be found at: http://www.dtu.dk/English/About_DTU/vacancies.aspx

[1] P. Lodahl and A. Lagendijk, *Transport of quantum noise through random media*, Phys. Rev. Lett. **94**, 153905 (2005).

[2] P. Lodahl, A.P. Mosk, and A. Lagendijk, *Spatial quantum correlations in multiple scattered light*, Phys. Rev. Lett. **95**, 173901 (2005).

Deadline for application: February 28, 2007