

Postdoc in Metamaterials for Nanoscale Quantum Optics

[DTU Fotonik](#)

Wednesday 18 Jan 17

Apply no later than 12 February 2017

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The Structured Electromagnetic Materials group in the Department of Photonics Engineering at the Technical University of Denmark is seeking candidates for a theoretical postdoc position in the field of Nanoscale Quantum Optics. In the [Structured Electromagnetic Materials group](#) we do theoretical and experimental research in nanoplasmonics, graphene plasmonics and metamaterials. We are part of the [Nanophotonics Section](#) of DTU Fotonik, and we contribute to the [Center for Nanostructured Graphene](#) and the [NATEC Center of Excellence](#).

DTU Fotonik has 220 employees with competences in optics and is one of the largest photonics research centers in the world. Research is performed within optical sensors, lasers, LEDs, photovoltaics, ultra-high speed optical transmission systems, biophotonics, nano-optics, and quantum optics.

Responsibilities and tasks

Metamaterials are designed electromagnetic structures with optical properties often not found in Nature. Their impact in classical optics is already strong, and in quantum optics there is much to be explored with hyperbolic and other metamaterials. Ultimately, the great design freedom in the electromagnetic environments may facilitate future quantum technologies.

Overall aim of this research project is to explore new ways to enable/control/harness quantum optical processes in metamaterial environments. Properties of single and multiple interacting quantum emitters will be studied, and the design of embedding metamaterials will be optimized. The research is theoretical/ analytical, and supported by numerical calculations.

The candidate can almost entirely focus on the research that is expected to be carried out with a high degree of independence. He or she will contribute to local and international collaborations, both with theorists and experimentalists. Furthermore, there are possibilities to assist in the teaching and supervision of students.

Qualifications

- Successful theoretical research in quantum optics, electromagnetism, and/or metamaterials
- Demonstrated affinity with mathematics and numerical calculations
- Good oral and written communication skills in English
- An interest to drive both local and international collaborations
- An interest to co-supervise BSc, MSc, and PhD students

- The candidates must have obtained a PhD degree at another university than DTU (mobility requirement)

We offer

We offer an interesting and challenging job in an international environment focusing on education, research, scientific advice and innovation, which contribute to enhancing the economy and improving social welfare. We strive for academic excellence, collegial respect and freedom tempered by responsibility. The Technical University of Denmark (DTU) is a leading technical university in northern Europe and benchmarks with the best universities in the world.

Salary and terms of employment

The appointment will be based on the collective agreement with the Confederation of Professional Associations. The allowance will be agreed with the relevant union. The employment is for a period of 24 months. The starting date is April 1, 2017, or soon thereafter.

The place of work is [DTU Fotonik](#), Ørsted Plads 345, DK-2800 Kongens Lyngby, Denmark.

Further information

Further information may be obtained from Associate Professor [Martijn Wubs](#), mwubs@fotonik.dtu.dk.

Application procedure

Please submit your online application no later than **12 February 2017**. Applications must be submitted as **one PDF file** containing all materials to be given consideration. To apply, please open the link "Apply online," fill in the online application form, and attach **all your materials in English in one PDF file**. The file must include:

- Application (cover letter)
- CV
- Diploma (MSc/PhD)
- List of publications

Applications and enclosures received after the deadline will not be considered.

All interested candidates irrespective of age, gender, disability, race, religion or ethnic background are encouraged to apply.

DTU is a technical university providing internationally leading research, education, innovation and scientific advice. Our staff of 5,800 advance science and technology to create innovative solutions that meet the demands of society; and our 10,600 students are being educated to address the technological challenges of the future. DTU is an independent academic university collaborating globally with business, industry, government, and public agencies.