Tampere University

Laboratory of Photonics

Doctoral Student & Postdoctoral Researcher in Experimental Quantum Optics

The *Laboratory of Photonics* has extensive research activities on a diverse area of photonics including nanofabrication, fundamental studies of nonlinear optical properties of new materials, interaction of ultra-short pulses with nonlinear media, high power fiber lasers and amplifiers, metamaterials, plasmonics, and the development of new techniques for optical spectroscopy.

Starting 2019, Professor Robert Fickler will join the *Laboratory of Photonics* and will establish an experimental research group working on cutting-edge quantum photonic experiments incl. quantum foundation studies and quantum information technologies.

The research will focus on structuring light down to the single photon level and investigate fundamental features of quantum physics, such high-dimensional quantum states and quantum entanglement. We will also develop and implement novel quantum information schemes, including cryptography, computation or simulation tasks. The work will embrace a broad range of different tasks, ranging from simulating and calculating quantum optical effects, to developing novel tools for photonic experiments and implementing quantum experiments in laboratories equipped with cutting-edge technologies.

Are you interested to join?

We are looking for a talented and highly motivated Doctoral Student as well as a Postdoctoral Researcher to carry out research within this exciting branch of photonics.

PhD: The successful candidate must hold an applicable higher university degree and should be motivated to pursue postgraduate studies as well as research on the highest level. A curiosity to investigate physical effects experimentally and to study the nature of quantum physics and its future technological applications are also beneficial. Basic programming skills, e.g. with Python, Matlab and Labview etc. are an advantage. Good written and spoken English skills are essential.

Postdoc: Postdoctoral candidates must hold an internationally-recognized PhD degree (or have the PhD defense scheduled within the next couple of months) in experimental Quantum Optics or Atom Optics. Some expertise in the quantum information theory as well as foundations are

also much appreciated. Knowledge in programming languages, e.g. Python, Matlab and Labview etc. would be very welcome. The candidate should further like to work in team, collaborate with theoretical colleagues (national and international) and help to supervise students.

What we are offering?

You will have the ability to perform research in vibrant field of quantum photonics in a young group with newly equipped quantum optics laboratory. The research can include a broad variety of tasks such as theoretical studies, design and implementation of experiments, data analysis and presenting the results on the national and international level. The PhD will be fully funded for up to 3 years with the possibility of extension. The Postdoctoral position will be filled for a period of up to 2 years. Both positions will preferably be filled in spring 2019 with some flexibility in the exact starting date.

How to apply?

The full application should be written in English. The required documents are:

- Curriculum Vitae
- List of publications
- Possible references (incl. the full email address)
- Motivation letter, including short introduction of the applicant, previous research work and future plans

Please send all documents via email to Robert Fickler (robertfickler@web.de) in a PDF format.

We are looking forward to hear from you!!!

Why Tampere? Why Finland?

Finland is among the most stable, free and safe countries in the world, based on prominent ratings by various agencies. It is also ranked as one of the top countries as far as social progress is concerned. Tampere is counted among the major academic hubs in the Nordic countries and offers a dynamic living environment. Tampere region is one of the most rapidly growing urban areas in Finland and home to a vibrant knowledge-intensive entrepreneurial community. The city is an industrial powerhouse that enjoys a rich cultural scene and a reputation as a centre of Finland's information society.

https://www.visitfinland.com/about-finland/
https://finland.fi/
https://tem.fi/documents/1410877/2888440/SIS_MIN_E...
https://visittampere.fi/en/

Why Tampere University?

The new Tampere University and higher education community begin their operations on 1 January 2019. Tampere University of Technology, the University of Tampere and Tampere University of Applied Sciences are building a unique environment for multidisciplinary, inspirational and high-impact research and education and a hub of expertise in technology, health and society.

https://www.tampere3.fi/en
https://www.tuni.fi/en