

FACULTY OF NUCLEAR SCIENCES  
AND PHYSICAL ENGINEERING  
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DEAN



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The Dean of the Faculty of Nuclear Sciences and Physical Engineering of the Czech Technical University in Prague is announcing the position of

### Postdoctoral research position in Optical Quantum Computing

#### Offer Description

**The faculty and team:** The Faculty of Nuclear Sciences and Physical Engineering of the Czech Technical University is a leading research and education institution in physics, activities covering quantum technologies, high-energy physics, and mathematical physics. It is also the only institution in the region offering a full master's and PhD programs in Quantum Technologies.

The research group Q3 at the Department of Physics, led by Prof. Igor Jex, is an active and ambitious team with many international connections both in theory and experiments. It is a pioneering group in the study of quantum optics, networks and its applications, such as the theory and implementation of quantum walks and the formulation of the Gaussian Boson Sampling problem. For more information about the Q3 group visit: <https://physics.fjfi.cvut.cz/index.php/en/research2/research-fields/quantum-dynamics-optics-and-informatics>

**The subject of the project:** This large European project will work towards the development of quantum photonic technology and consists of several leading experimental and theoretical groups based throughout Europe. The focus of this research will be on the scalability and fault-tolerance performance of the optical quantum platforms and near-term applications of such devices.

**Tasks of the candidate:** The suitable candidate will contribute to the theoretical side of the project, whose main goals are to develop quantum photonic architectures capable of scalable cluster state generation and subsequent tests for these architectures that benchmark and verify the quantum nature of such states. Further work will look at creating quantum algorithms that can then be demonstrated on these platforms. The work will be carried out in close collaboration with a number of leading experimental groups in Europe and forms a unique intellectual environment for creating exciting new ideas in the field.

### Requirements

Research Field - Physics  
Education Level - PhD or equivalent

### Skills/Qualifications

The ideal candidate is expected to have a strong background in quantum optics and quantum information processing, in particular, linear optical quantum computing. Experience with experimental quantum optics, non-classicality measures and error correcting codes is an advantage.

### Job Information


Research Field – Physics, Quantum Physics, Quantum Optics, Quantum Information  
Researcher Profile - Recognized Researcher (R2)  
Type of Contract - Temporary  
Job Status - Full-time (Hours Per Week – 40)  
Is the job funded through the EU Research Framework Programme? YES  
Is the Job related to staff position within a Research Infrastructure? NO

### Additional Information

**Benefits** - Gross salary 65 000 CZK per month (approx. 50 000 CZK net income), 4 weeks of paid vacation, health and social insurance.

The position is planned to start on **January 1, 2024**, for a year with possible extension by another year based on performance.

Applications including a detailed curriculum vitae, copies of diplomas, an overview of publishing activities and motivation letter should be sent directly to e-mail address [lucie.farmackova@fjfi.cvut.cz](mailto:lucie.farmackova@fjfi.cvut.cz) by **November 30, 2023** with subject "*Selection procedure – Postdoctoral research position in Optical Quantum Computing*".

  
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Dean of the FNSPE

