



Paderborn University is a high-performance and internationally oriented university with approximately 20,000 students. Within interdisciplinary teams, we undertake forward-looking research, design innovative teaching concepts and actively transfer knowledge into society. As an important research and cooperation partner, the university also shapes regional development strategies. We offer our more than 2,600 employees in research, teaching, technology and administration a lively, family-friendly, equal opportunity environment, a lean management structure and diverse opportunities.

Join us to invent the future!

With the **Institute for Photonic Quantum Systems (PhoQS)**, Paderborn University aims to establish an international research center in the field of photonic quantum technologies. The goal is to develop new technologies for photon-based quantum applications as well as new theoretical and experimental concepts and research approaches. The ultimate focus is on the understanding and control of photonic quantum simulators and quantum computers.

Within this scope, we invite applications for the following fixed-term position (100% of the regular working time), which will start at the earliest opportunity:

Postdoc (f/m/d)

(Salary level E 13 TV-L)

The position is embedded in project C11 of the Collaborative Research Centre SFB TRR 142 funded by the German Research Foundation. Employment is initially limited to three years and adheres to the legal regulations laid out in the WissZeitVG. The time limit corresponds to the approved project period.

In this collaborative project, you will develop electro optical modulators in thin film lithium niobate for quantum optical applications. With strong support from the SFB TRR 142 groups, the goal is to implement a technology to fabricate modulators and the corresponding electronics to generate degenerated photon pairs with extremely high repetition rates. This entails:

- Designing and implementing electro optical modulators
- Demonstrating classical properties of modulation and photon pair generation
- Verifying degenerated two-photon state generation

The position will be integrated in a large, dynamic, and friendly international group, with expertise from device design and fabrication to quantum photonics and networking.

Specifically, we are looking to employ a postdoc in the field of experimental quantum optics, the following are examples of relevant tasks:

- Development and fabrication of modulators in thin-film lithium niobate
- Modeling of modulators for quantum light manipulation
- Optimization and characterization of modulator device quality
- Development of fast electronics for modulators
- Development and optimization of optical setups for quantum light experiments
- Characterization and operation of quantum light modulation devices
- Assistance training Doctoral, Master, and Bachelor students

It is expected for the successful candidate to have experience in one or more of the following areas:

- Integrated optical device fabrication and technology
- Thin-film lithium niobate technology
- Modeling of integrated optical devices
- Nonlinear optics, especially frequency conversion
- Integrated optics, especially guided-wave optics
- Electronics design

Knowledge in programming with Python, Lumerical, Rsoft and/or Comsol, as well as cleanroom experience are beneficial.

Hiring requirement:

Suitable candidates have completed their Ph.D. in physics or a closely related subject.

Since Paderborn University seeks to increase the number of female scientists, applications of women are especially welcome. In case of equal qualification and scientific achievements, they will receive preferential treatment according to the North Rhine-Westphalian Equal Opportunities Policy (LGG), unless there are cogent reasons to give preference to another applicant. Likewise, applications of disabled people with appropriate qualification are explicitly requested. This also applies to people with equal status according to the German social law SGB IX.

Please send your application including a CV and list of publications (preferably in a single pdf file) using the **Ref. No. 5762** by **15.04.2023** via e-mail to christine.silberhorn@upb.de and in copy to laura.padberg@upb.de.

Information regarding the processing of your personal data can be located at: <https://www.uni-paderborn.de/en/zv/personaldatenschutz>

Prof. Dr. Christine Silberhorn
Integrated Quantum Optics
Department of Physics
Institute for Photonic Quantum Systems (PhoQS)
Paderborn University
Warburger Str. 100
33098 Paderborn

