



The Faculty of Physics and Astronomy at the Friedrich Schiller University Jena invites applications for the position of a

**Professor (W3 or W2 with Tenure Track to W3) for  
Quantum Information Theory**

to be filled in spring 2022.

We are looking for a proven research personality (m/f/o) in the field of quantum information theory, preferably with a focus on quantum computing or theoretical quantum optics.

The excellent research environment in Jena, especially in the field of optics, enables intensive interaction with a wide variety of research groups in theoretical and experimental physics, but especially with the soon advertised professorship for experimental quantum optics with focus on quantum information. Collaborative alliances also include theoretical chemistry and computer science.

Such close cooperation with other research groups at the University of Jena and an intensive interaction with thematically correspondingly oriented institutes within the framework of an existing and growing network are expected, as well as active contributions to the university's profile line Light and commitment to the academic self-administration. Experience in the acquisition of third-party funds, project acquisition and the implementation of third-party projects as well as leadership skills are expected. Teaching duties include, in particular, basic lecture courses of theoretical physics in Bachelor and teacher study programs as well as fundamentals and advanced areas of quantum optics, quantum information and quantum computing in the Master's programs in physics and photonics; the Master's courses are to be held in English.

Prerequisites for the application are a relevant university degree, pedagogic skills, special aptitude for scientific work proven by a pertinent dissertation and a habilitation or equivalent scientific achievements. In case this is the first professorial position of the candidate, the appointment is intended to be initially on the W2 level and limited to six years. In this case, the transition to a W3 professorship without renewed announcement is envisaged based on a positive tenure evaluation, at the latest after six years.

The Friedrich Schiller University strives to increase the proportion of women in research and teaching and therefore strongly encourages qualified female scientists to apply.

Applications of handicapped people will be given preference in the selection among equivalently qualified competitors.

Applications should include a curriculum vitae with details on the scientific career, a list of publications, presentations, teaching (possibly with evaluations) and successful grant applications, as well as a research plan and a teaching concept. Applications should be submitted electronically via the application portal of the Friedrich Schiller University at [www.berufungsportal.uni-jena.de](http://www.berufungsportal.uni-jena.de) until 07.01.2022. They should be addressed to:

**Friedrich Schiller University Jena  
Faculty of Physics and Astronomy  
Dean  
Max-Wien-Platz 1  
07743 Jena  
E-mail: [dekanat-paf@uni-jena.de](mailto:dekanat-paf@uni-jena.de)**

# Job advertisement

Closing date: 28.01.2021



**FRIEDRICH-SCHILLER-  
UNIVERSITÄT  
JENA**

The faculty of Physics and Astronomy at the Friedrich Schiller University Jena invites applications for the position of

## **Professor (W3 or W2 with Tenure Track to W3) in Experimental Quantum Information**

to be filled in 2022.

The successful candidate (m/f/o) should be a known expert in experimental quantum optics with a scientific focus in quantum information. This can include excellent research on, among other things, quantum communication and quantum computing, including aspects of the manipulation and storage of quantum states. The research environment in Jena, which is particularly excellent in optics and photonics, enables an efficient, practical way of working while utilizing the available resources in particular in micro- and nano-optics. A close cooperation with the other research groups of the University - but especially with the also advertised professorship for Quantum Information Theory - and thematically related institutes and companies within an existing and growing network is expected. Active contributions to the university's profile line Light are desired. Experience in the acquisition of research funds, project acquisition and in the implementation of third-party funded projects as well as leadership skills are highly appreciated. Involvement in academic self-administration is expected. Teaching should cover especially topics in the field of quantum optics, quantum information and quantum computing within the curricula in physics and in particular photonics, whereby the courses are to be held predominantly in English.

Prerequisites for the employment are a relevant university degree, pedagogic skills, a pertinent dissertation and a habilitation or equivalent achievements in the subject area. In case this is the first professorial position of the candidate, the appointment is intended to be initially on the W2 level and limited to six years. In this case, the transition to a W3 professorship without renewed announcement is envisaged based on a positive tenure evaluation, at the latest after six years.

The Friedrich Schiller University wants to promote women in science and education and is particularly looking forward to receive applications from female researchers. Applications of handicapped people will be given preference in the selection among equivalently qualified competitors.

Applications should include a curriculum vitae with details on the scientific career, a list of publications, presentations, teaching (possibly with evaluations) and successful grant applications, as well as a description of scientific interests and research plans for the future and a teaching concept. Applications should be submitted electronically via the application portal of the Friedrich Schiller University at [www.berufungsportal.uni-jena.de](http://www.berufungsportal.uni-jena.de) until 28.01.2022. They should be addressed to:

**Friedrich Schiller University Jena  
Faculty of Physics and Astronomy  
Dean  
Max-Wien-Platz 1  
07743 Jena  
E-mail: [dekanat-paf@uni-jena.de](mailto:dekanat-paf@uni-jena.de)**

# Job advertisement

Vacancy ID: 448/2021

Closing date: 14.01.2022



**FRIEDRICH-SCHILLER-  
UNIVERSITÄT  
JENA**

Friedrich Schiller University Jena (FSU) is a traditional German university covering all disciplines and offering a wide range of subjects. Its research is focused on the areas LIGHT – LIFE – LIBERTY. It is highly interconnected with non-research institutions, research companies and renowned cultural institutions. With around 18,000 students and more than 8,600 employees, the university plays a major role in shaping Jena's character as a cosmopolitan and future-oriented city.

To foster excellence in quantum photonics and quantum technology research, the profile line LIGHT is searching for a

## **Junior Research Group Leader (w/m/d) in the Field of Theory of Optical Quantum Information**

Building on the longstanding history of photonics research and teaching at FSU, the aim of the University's central profile line LIGHT is to foster photonic quantum technologies, which are considered to have a particularly disruptive potential for science, business and society. In the near future, secure and sustainable digital infrastructures based on photonic quantum technologies will require physical platforms. Their development, implementation and usage will call for sound theoretical-mathematical knowledge, algorithmic method competence and physical and technological modeling expertise. The appointee is expected to establish an independent research group, working in the field of theoretical modeling and focusing on one or several of the following topics:

- quantum algorithms,
- quantum communication,
- quantum correlation, and/or
- quantum information.

Building a strong connection between the new junior research group and the experimental groups already existing in Jena is explicitly desired. Emphasis of the new group could be focused on quantum optical platforms, as they are already being developed at the university and at non-university institutes. The appointee will also be actively involved in teaching students at the Master's and/or Bachelor's degree level.

Depending on its explicit topical alignment, the new junior research group will be associated either to the Institute of Condensed Matter Theory and Optics (IFTO) at the Faculty of Physics and Astronomy, or to the Institute of Physical Chemistry (IPC) at the Faculty of Chemistry and Earth Sciences.

This open topic call is focusing on excellent early-career scientists. FSU is strongly committed to an increase in the number of women in leading positions in science, and therefore women are especially encouraged to apply.

### **We require**

The candidates should already have proven their potential for excellent science by an outstanding quality of their Doctorate/PhD research in photonic quantum science or related fields. Furthermore, they should demonstrate the ability to supervise students and their leadership potential to run a research team. A successful postdoc period is highly appreciated. Knowledge of German is an advantage, but due to the international character of the research environment not strictly necessary.

### **We offer**

- The profile line LIGHT and FSU's Abbe Center of Photonics ([www.acp.uni-jena.de](http://www.acp.uni-jena.de)) offer an outstanding interdisciplinary and interprofessional network of potential cooperation partners. They combine university and non-university research as well as science and business.
- The appointee will receive a flexible, attractive funding package to finance his/her own salary and the start of an independent research program. Further funds can be accessed on a competitive basis.

- Salary is in accordance with the Collective Agreement for the Public Sector of the Federal States (TV-L) depending on the personal qualifications up to salary scale **E14**.
- The FSU provides a family-friendly working environment with flexible working options as well as a university scheme for the promotion of career, health and well-being.
- Jena is an attractive, young city in the heart of Germany with an excellent environment embedded in a lively and future-oriented region in science and economy.

The full time position of the junior group leader (40 h per week) is available at the earliest convenient date and is limited to 6 years.

The job interviews will prospectively be held at the beginning of 2022, and may be done either on-site or online.

Severely disabled applicants with equal qualification and aptitude are given preferential consideration.

Please send your application (cover letter) including the required supporting documents (complete CV, certificates, transcripts of records including all grades, publication list, list of previously raised third-party funding) providing the Reg.-No. 448/2021 in a single pdf-file via email **until 14.01.2022** to Dr. Jana Hölzer ([jana.hoelzer@uni-jena.de](mailto:jana.hoelzer@uni-jena.de)).

For further information and in case of questions do not hesitate to contact:

- For administrative issues: **Dr. Jana Hölzer**, [jana.hoelzer@uni-jena.de](mailto:jana.hoelzer@uni-jena.de)
- **Prof. Lothar Wondraczek**, spokesperson of the profile line LIGHT, [lothar.wondraczek@uni-jena.de](mailto:lothar.wondraczek@uni-jena.de).
- **Prof. Ulf Peschel**, deputy spokesperson of the profile line LIGHT and director of the Institute of Condensed Matter Theory and Optics, [ulf.peschel@uni-jena.de](mailto:ulf.peschel@uni-jena.de),

For further information for applicants please also refer to [www.uni-jena.de/stellenmarkt\\_hinweis](http://www.uni-jena.de/stellenmarkt_hinweis). For information on collecting personal data please refer to [www.uni-jena.de/universität/stellenmarkt/datenschutzhinweis](http://www.uni-jena.de/universität/stellenmarkt/datenschutzhinweis).

**Job Advertisement**  
**Vacancy ID: 447/2021**  
**Deadline: 17.12.2021**



**FRIEDRICH-SCHILLER-  
UNIVERSITÄT  
JENA**

The Friedrich Schiller University Jena is a traditional and research-oriented university located in the center of Germany. Covering all disciplines, this university offers a wide range of subjects and research areas which are embedded in its profile lines, LIGHT – LIFE – LIBERTY. Outside of its international academic network, it is very well connected to non-university research institutions and companies, as well as several reputable cultural institutions. With around 18,000 students and more than 8,600 employees, the FSU significantly shapes the character of Jena as a cosmopolitan and future-oriented city.

The Abbe Center of Photonics ([www.acp.uni-jena.de](http://www.acp.uni-jena.de)) combines the competencies necessary for the support and coordination of all projects and activities in the field of optics and photonics at the Friedrich Schiller University Jena, and within its own profile line, LIGHT. The center contributes significantly to the international visibility and networking activities of the university in research and teaching. With its accredited M.Sc. Photonics, the integrated Abbe School of Photonics ([www.asp.uni-jena.de](http://www.asp.uni-jena.de)) forms the framework for an internationalized Master's program in Photonics. Our aim is the strategic digitization of our existing offers for international research and teaching, which should meet the highest standards of quality and sustainability. At the same time, a cross-site development and expansion of teaching in the field of photonic quantum technologies is to take place, in cooperation with the Friedrich-Alexander-Universität Erlangen-Nürnberg, the University of Paderborn, the University of Ulm, and the Fraunhofer Institute for Applied Optics and Precision Engineering IOF. In order to meet these challenges, the following positions are to be filled on the basis of third-party funded projects of the Federal Ministry of Education and Research (BMBF) and the German Academic Exchange Service (DAAD) as soon as possible:

### **Three Scientific Employees (TV-L 13, m/w/d) in the field of photonic quantum technologies and digital teaching**

The international photonics industry currently faces its transition into the age of quantum technologies. An already excellent starting position in research notwithstanding, the training and further education of highly qualified junior staff will be of decisive importance for the competitiveness of Germany as a photonics location. Furthermore, digital teaching and learning elements are considered a great opportunity to explore innovative methods in academic teaching. It is the aim of the projects, to create an attractive range of photonics teaching modules in Jena, especially in the field of photonic quantum technologies, which should ideally be digitized and made available for better digital studying. These teaching modules are to be symbiotically integrated into the current M.Sc. Photonics course, in order to ensure a high degree of flexibility and mutual permeability of digital and analog teaching formats.

#### **Your tasks will mainly consist of:**

- Setting up a quantum technology internship
- Development, set-up, and implementation of digital teaching/learning content in optics and photonics, including digital internships and experiments in particular
- Tutoring students in the application of the internship and the teaching/learning formats
- Support and training of lecturers in the didactic implementation
- Support of the student administration and lecturers in the continuous evaluation and further development of the international educational program
- Further development of the range of courses for new target groups, such as executives, engineers, and students from the Universities of Applied Sciences
- Cross-university and interdisciplinary exchange and competence transfer on quantum and digital content in the international partner network

#### **Your profile:**

- University or FH Degree (Bachelor, Diploma, Master, Doctorate) in physics, computer sciences, engineering, or similar studies in connection with relevant experience in photonic quantum technologies and/or digital teaching
- Ability to work proactively, independently, and in a structured manner
- Proficiency in written and spoken English
- Very good communication and team skills



**Additional desirable qualities:**

- Practical experience on scientific-technical aspects of photonics, quantum technologies, or quantum physics
- Practical experience in optical technologies, measurement technology, and measurement electronics
- Practical experience in the programming of actuators and sensors, IoT development
- Experience in practical, academic teaching
- Experience in modern science management
- Joy and creativity in solving programming and experimentation problems

**Our offer:**

- The challenge of supervising Master's students, with special focus on quantum technologies and new digital teaching methods in the international working environment of the Abbe School of Photonics. This is a promising field of activity with a high degree of personal and professional freedom and the great opportunity to qualify for a scientific career in a highly current field.
- An excellent interdisciplinary and interprofessional network of potential cooperation partners at the Abbe Center and Abbe School of Photonics.
- A family-friendly working environment with flexible work opportunities, as well as a university program promoting work, health, and well-being.
- Jena, as an attractive young city in the heart of Germany, has an excellent environment which is shaped by the local players into a lively and future-oriented scientific and economic region.
- Remuneration, in accordance with the provisions of the Collective Agreement for the public service of the federal states (TV-L), up to pay group 13 depending on personal requirements, including a collectively agreed annual special payment.

These three full-time positions (40 h per week) are limited until 30.11.2024. The position may be modified to part-time, if a candidate (m/w/d) matches the requirements exceedingly well. Interviews are expected to take place in December 2021 and January 2022 and can be conducted either on-site or online.

Disabled people with the same qualifications and suitability are given preferential consideration.

Applications should be sent until 17.12.2021 (no cut-off deadline). Please send your application (cover letter) and the required proof (complete Curriculum Vitae, certificates including all grades, list of publications if applicable), stating the reg. no. in a single .pdf file to Dr. Christian Helgert ([christian.helgert@uni-jena.de](mailto:christian.helgert@uni-jena.de)), who is also at your disposal should you have any questions.

Please note our applicant information: [www4.uni-jena.de/stellenmarkt\\_hinweis.html](http://www4.uni-jena.de/stellenmarkt_hinweis.html)

Please also note the information on the collection of personal data: [www4.uni-jena.de/Stellenmarkt\\_Datenschutzhinweis.html](http://www4.uni-jena.de/Stellenmarkt_Datenschutzhinweis.html)