

Postdoctoral fellow in quantum information directed towards quantum integrated optics

at [the Department of Physics](#). Closing date: 2017-03-31.

Stockholm University is one of the leading universities in one of the world's most dynamic capitals. The University has more than 70 000 students, 1800 doctoral students and 5000 staff active within science, the humanities and the social sciences.

The Department of Physics is large and supports a broad range of basic research in experimental and theoretical physics. It has about 230 employees of which 90 are PhD students. Many have been internationally recruited. The Department is part of the AlbaNova University Center, which apart from the Department of Physics houses the Department of Astronomy (SU), the Physics Departments and the Division of Theoretical Chemistry at the Royal Institute of Technology (KTH), and the Nordic Institute for Theoretical Physics (Nordita).

Research area

The Department of Physics is looking for a postdoc in the area of quantum information to conduct experimental research on the development and integration of components for quantum communication and quantum cryptography. The goals of the project are 3D laser writing of integrated optical circuits, characterization of quantum components, and their use in quantum communication and quantum cryptography system solutions.

Within quantum information science, an area that combines information theory and quantum physics, the effects of storing and processing information in quantum physical systems are studied. The area has brought about several successful results during recent years. Examples include completely secure distribution of encryption keys, so called quantum encryption, and quantum teleportation, where unknown quantum states can be transmitted from one place to another.

The research will be conducted within a larger collaborative research project. For more information, please visit: www.kiko.fysik.su.se.

The research involves the development, study, and integration of components using 3D laser writing which includes the design, fabrication, characterization, and integration in quantum optical experiments. The research will be conducted independently as well as within the research group and in close collaboration with other research groups.

Qualification requirements

Scholarship for conducting postdoctoral studies can be awarded for up to two years within five years after PhD or equivalent.

Assessment criteria

A suitable background is a PhD in physics with experimental experience in quantum optics. Additional experience in Laser writing and programming is a merit. Applicants must have strong communication skills with excellent knowledge in English, both written and spoken.

The assessment is based on documented experimental knowledge relevant to the area, knowledge of and experience in instrumentation and experimental methods, analytical skills, ability to work well in groups as well as independently, and personal commitment. Strong motivation is considered a key component for a successful outcome of the postdoctoral research. Applicants are invited to enclose documents certifying qualifications and competences, i.e. knowledge, skills and experience relevant to the application. Letters of recommendation and interviews will be used to assess the applicant's qualifications.

The scholarship

The postdoc scholarship is for one year full time that can be extended by a second year. Start date as soon as possible or per agreement.

Stockholm University strives to be a workplace free from discrimination with equal opportunities for all.

Contact

For more information about the scholarship, please contact Prof. Mohamed Bourenane boure@fysik.su.se, or Head of the Department Sven Mannervik, mannervi@fysik.su.se.

Application

Apply to this scholarship by e-mail to Prof. Mohamed Bourenane, boure@fysik.su.se. Your complete application must be received **no later than 2017-03-31**. Mark your application with **reference number SU FV-3658-16**.

Please include the following information with your application

- Your contact details and personal data
- Your highest degree
- Your language skills
- Contact details for 2–3 references

and, in addition, please include the following documents

- Cover letter
- CV – degrees and other completed courses, work experience and a list of publications
- Research proposal (no more than 3 pages) describing:
 - why you are interested in the field/project described in the advertisement
 - why and how you wish to complete the project

- what makes you suitable for the project in question
- Copy of PhD diploma
- Publications in support of your application (no more than 3 files).

You are welcome to apply!