

# Postdoctoral fellow in THz induced surface chemical reactions

at [the Department of Physics](#). Closing date: 2017-07-31.

Stockholm University is a leading European university 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 (Stockholm University), 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

We have an immediate postdoctoral fellow opening for an outstanding individual for studies in the area of control of surface reactivity using THz radiation. This particular project aims to understand how we can selectively activate specific bonds between adsorbates and metal surfaces that can direct catalytic reactions at low temperatures (Phys. Rev. Lett. **115**, 036103 (2015)). Since CO<sub>2</sub> emission is one of the large questions for mankind the ability to reduce CO<sub>2</sub> to useful fuels and chemicals will be a focus in the studies. At Stockholm University a new group has been created that focuses on fundamental reactivity at surfaces, electrocatalysis and hydrogen bonding in liquids. See the following link <http://xsolasgroup.fysik.su.se>. Another new group in the area of condensed matter physics focuses on the use of strong THz radiation to drive non-equilibrium processes in solids. A state-of-the-art table-top THz source is installed in the department, see <http://udcm.fysik.su.se>. This new project is connected to a larger program with other participants at the Department of Physics and at Stanford University that involves theoretical calculations and ultrafast x-ray and optical spectroscopy that complements THz based experiments.

## 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 chemistry or physics and a background in surface chemistry and/or ultrafast spectroscopy, x-ray spectroscopy with synchrotron radiation, with a focus on surfaces or condensed phase studies. The fellow will be placed at Stockholm University with frequent travels to Stanford/SLAC National Accelerator Laboratory, TELBE in Dresden, MAXIV in Lund, DESY in Hamburg and Elettra in Italy.

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. Anders Nilsson, [andersn@fysik.su.se](mailto:andersn@fysik.su.se), Dr. Stefano Bonetti, [stefano.bonetti@fysik.su.se](mailto:stefano.bonetti@fysik.su.se) or Head of the Department Prof. Sven Mannervik, [mannervi@fysik.su.se](mailto:mannervi@fysik.su.se).

## **Application**

Apply to this scholarship by e-mail to Prof. Anders Nilsson, [andersn@fysik.su.se](mailto:andersn@fysik.su.se). Your complete application must be received **no later than 2017-07-31**. Mark your application with **reference number SU FV-1215-17**.

Please include the following information with your application

- Your contact details and personal data
- Your highest degree
- Your language skills
- Contact details for 1-2 references

Important: Your academic referees should send their recommendation letters no later than application deadline, via email to Prof. Anders Nilsson, [andersn@fysik.su.se](mailto:andersn@fysik.su.se).

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!**