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Postdoctoral Position in Optical Frequency Comb Spectroscopy

The Department of Physics is active in many research areas, including atomic, molecular and optical physics, laser spectroscopy, biological physics, organic electronics, condensed matter physics, nonlinear and plasma physics, and statistical physics and networks. Laser spectroscopy has been one of the major experimental research fields at the Department for over 15 years, and it belongs to the strong research environment Light in science and technology.

The Optical Frequency Comb Spectroscopy Group works with the development and applications of cavity-enhanced optical frequency comb spectroscopy (CE-OFCS) for broadband ultrasensitive detection of molecular species in the gas phase. We have a fully operating CE-OFCS system based on an Er:fiber femtosecond laser and a fast-scanning Fourier transform spectrometer. We have recently used this system to demonstrate, for the first time with this technique, detection of broadband high-temperature water spectra in a flame. Moreover, we have developed a new sensitive detection method, which we termed noise-immune cavity-enhanced optical frequency comb spectroscopy (NICE-OFCS); the technique combines frequency modulation and cavity enhancement in a manner similar to NICE-OHMS in cw spectroscopy, and allows achieving immunity to laser frequency-to-amplitude noise conversion over the broad spectral bandwidth of the optical frequency comb. In parallel, we are developing a mid-infrared CE-OFCS system, based on a Tm:laser-pumped optical parametric oscillator for applications in combustion analysis and environmental research.

We are now seeking a postdoctoral researcher to work on the project aimed at ***applications of CE-OFCS in combustion analysis*** and at ***further development of the NICE-OFCS technique***. The appointment is for two years full time starting in the fall 2014.

Competence requirements
The successful candidate should hold a PhD degree in experimental physics (or equivalent) obtained less than three years ago and have experience in the fields of laser spectroscopy, optics, electronics, and trace gas detection. The applicant should be highly motivated and have the ability to work independently as well as a part of the research group. The candidate should be fluent in both oral and written English.

Application
The application must include:

- a motivation letter describing previous research experience;
- a CV with a list of publications;
- copies of relevant exam certificates and publications;
- contact information of two referees who would write a letter of recommendation.

Information
More information is given by Dr. Aleksandra Foltynowicz (aleksandra.foltynowicz@physics.umu.se).

Your complete application, marked with **reference number Dnr AN 2.2.1.4-575-14**, must be sent to jobb@umu.se (state the reference number as subject) or to the Registrar, Umeå University, SE-901 87 Umeå, Sweden, to arrive **June 11, 2014 at the latest**.

See the full text of the announcement here.