PAUL SCHERRER INSTITUT

The Paul Scherrer Institute, PSI, is with 1500 employees the largest research centre for natural and engineering sciences within Switzerland. We perform world-class research in three main subject areas: Matter and Material; Energy and the Environment; and Human Health. By conducting fundamental and applied research, we work on long-term solutions for major challenges facing society, industry and science.

The PSI Laser Group is exploring novel lasers and their applications for the hard x-ray Free Electron Laser, currently being built at PSI. A recently developed intense soft x-ray laser is used for pioneering ultrafast dynamics in condensed matter (thin films, surfaces, gas). In this project we want to significantly extend the wavelength range of this soft x-ray laser and use it to study ultrafast dynamics in solids. The soft x-ray laser is based on high-order harmonic generation (HHG) and offers extremely short pulses down to the attosecond regime (1as=10-18sec). During this thesis a combination of different types of laser systems (UV, THz) will be used to perform unique time-resolved experiments.

For this project we are looking for a

PhD Student

for developing a bright, table-top soft x-ray laser for studying ultrafast dynamics in condensed matter

Your tasks

- Explore novel methods for characterizing the intense soft x-ray laser in the temporal, spatial and spectral domain with cutting edge equipment
- Investigate ultrafast dynamics in the femtosecond and attosecond timescale in condensed matter
- Study high-harmonic generation with intense mid-infrared laser sources in order to extend the soft x-ray laser to the water window (2.4-4.2 nm) and beyond
- Collaborate with international research groups and companies and present scientific results on international conferences

Your profile

The successful candidate should have a university degree in physics, preferably with experience in nonlinear optics, ultrafast lasers or condensed matter physics. Knowledge on data analysis and evaluation is also required. We are looking for a highly motivated teammember who enjoys experimental work in a team. Good communication skills in English (and/or German) are required. The work will be performed at the Paul Scherrer Institute.

For further information please contact Prof. Dr Christoph Hauri, phone +41 56 310 41 97.

Please submit your application online (including addresses of referees) for the position as a PhD Student (index no. 1611-03) here: http://www.psi.ch/pa/offenestellen/0696-3

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