Post-Doctoral Researcher (f/m/d) – Ultrafast Optics / X-ray Metrology

The Ultrafast Optics group at Leibniz University of Hannover, Germany invites applications for a Post-Doctoral Researcher position in the field of ultrafast optics and X-ray metrology. This exciting opportunity is part of the COMBOFEL research project, funded by the Federal Ministry of Education and Research (BMBF).

Project background: The COMBOFEL project aims to upgrade of the already existing High-order Harmonic Generation setup at the Free-Electron Laser (FEL) FLASH at DESY in Hamburg. A key objective is to produce XUV continua for pump-probe spectroscopic applications in combination with the FEL.

Job description: As a Post-Doctoral Researcher, you will conduct experimental investigations in non-linear optics and strong field physics. Your primary responsibilities will include:

- Development of an ultrafast laser source based on nonlinear pulse compression and implementation in FLASH Facility.
- Handling intense femtosecond laser light, beamline optics, and integrating systems into the control system of the FLASH facility.
- Participation in the implementation of the upgraded attosecond beamline at the FLASH facility.
- Presentation novel results in international conferences and publishing in scientific journals.

The position: We are looking for a qualified individual with experience in the field of experimental non-linear optics, ultrafast optics and x-ray optics. Experience with machine control for remote access to the experimental setups is an asset.

The position is located in DESY, Hamburg and affiliated to the Quantum Optics Institute in the Ultrafast Laser Group of Uwe Morgner and Milutin Kovacev. The project will be carried out in a very close collaboration with the FLASH laser and experiment operation groups. Excellent communication skills in English are required. The position is limited to three years.

Your profile: PhD in Physics or Electrical Engineering with experience in laser science and/or x-ray physics as well as excellent scientific knowledge including analytical and experimental skills. Previous experience working in large-scale facilities is an advantage.

Salary and benefits are commensurate with those of public service organizations in Germany. Applicants should provide a motivation letter, a curriculum vitae and a statement of research interests. The review of incoming applications will start immediately and will continue until a

suitable candidate is identified. We suggest applying by September 2025 to ensure full consideration.

For further information please contact Prof. Milutin Kovacev +49-511-762-5286 (kovacev@igo.uni-hannover.de) & Dr. Hüseyin Çankaya +40-40-8998-6093 (huseyin.cankaya@desy.de)

References:

Appi, E. *et al.* (2020) 'A synchronized VUV light source based on high-order harmonic generation at FLASH', *Scientific Reports*, 10(1), p. 6867. Available at: https://doi.org/10.1038/s41598-020-63019-2.

Appi, E. *et al.* (2021) 'Synchronized beamline at FLASH2 based on high-order harmonic generation for two-color dynamics studies', *Review of Scientific Instruments*, 92(12), p. 123004. Available at: https://doi.org/10.1063/5.0063225.

Viotti, A.L.. *et al.* (2023) 'FLASH free electron laser pump-probe laser concept based on spectral broadening of high-power ytterbium picosecond systems in multi-pass cells', *Rev. Sci. Instrum. 94, p.023002*. Available at: https://doi.org/10.1063/0.0131717 .