HELMUT SCHMIDT UNIVERSITÄT
Universität der Bundeswehr Hamburg

At Helmut Schmidt University / University of the Federal Armed Forces Hamburg (HSU/UniBw H), Faculty of Electrical Engineering, Professorship for Laser Technology (Univ.-Prof. Dr. Pronin), a position is **available from the next possible date** for a

Research Assistant (m/f/d)

(salary group 13 TVöD [Collective agreement for the public service]; 39 hours per week)

for a limited period of 2 years.

The research activities of the professorship are focussed on basic civil laser research with a particular focus on applications in spectroscopy. Our topics range from the development of powerful disc laser oscillators and XUV frequency combs to the investigation of non-linear effects in multipass cells and laser-matter interaction at pulse durations below 50 fs (1 fs = 10-15 s). The newly developed laser systems and spectroscopy methods offer a broad application potential in precise XUV spectroscopy, spectroscopy with ultrashort laser pulses and ultra-precise next-generation material processing.

The position offered focuses on next-generation ultra-precise material processing with pulses of less than 50 fs at a wavelength of 1030 nm and its harmonics (515 nm, 343 nm). We plan to investigate various transparent materials such as glasses, polymers and ceramics and explore ablation, cutting and non-linear refractive index changes. Selective etching will be used to clean
the surface and create holes and channels in the glass materials for future chip packaging applications. Ablation and cutting are performed using galvo scanner systems and specialised XY translation stages with nanopositioning accuracy.

Responsibilities:

- Research into various non-linear conversion processes for 1030 nm fundamental wavelength with the goal to generate highest efficiency second and third hamornics at <50 fs pulse duration
- Study interactions of <50 fs pulses at 1030 nm, 515 nm and 343 nm with different materials. Systematically analyze the results with laser scanning microscope, electron microscope and make the data evaluation
- Systematic analysis of the results using a laser scanning microscope and an electron microscope and evaluation of the data
- Application of the developed technologies in drilling, cutting and other processes with industrial relevance
- Assistance in teaching to the extent of basically 3,0 trimester hours per week
- Possibility of further academic qualification (e.g. doctorate or habilitation)
- Carrying out general administrative work as well as academic activities in academic self-administration

Qualification requirements:

- A completed university degree (Diplom [univ.] or Master) in the field of physics or engineering
- Experience with nonlinear optics, namely, second and third harmonic generation with femtosecond pulses
- Experience with ultrashort pulse characterization techniques such as autocorrelator or FROG
- Experience with electronics and programming of microcontrollers

Furthermore desired:

- Knowledge of foreign language in English with a proficiency level that corresponds at least to the language level B2 of the Common European Framework of Reference for Languages
- High motivation, excellent teamwork and creative problem-solving ability
- Ability to work independently, commitment and flexibility
- Strong interest in scientific work and the ability to teach

Features of this position:

- Capital-forming benefits
- Annual bonus payment
- Company pension scheme
- Flexible working hours
- DeutschlandJobTicket with employer subsidy if the necessary requirements are met
- Possibility of claiming a childcare place in a daycare centre close to the campus if the necessary preconditions are met
- You will benefit from targeted personnel development and an extensive range of further training and education opportunities.
- Budget-friendly meals in the campus canteen with three meals a day
- You have the opportunity to participate in workplace health promotion offers (for more information, see: www.hsu-hh.de/bgm/).
- Free parking on the campus grounds
- Possibility of using the Bundeswehr's own car-sharing service (for more information, go to: www.bwcarsharing.de).

For questions related to scientific or technical aspects, please contact Univ.-Prof. Dr. Pronin, Tel.: 040/6541-2756 or by e-mail: oleg.pronin@hsu-hh.de

The employment is based on the TVöD in conjunction with the Wissenschaftszeitvertragsgesetz [German Act on Fixed-Term Scientific Contracts]. In principle, the activities correspond to pay group 13 (E13). Classification up to pay group 13 of the TVöD shall be made in accordance with § 12 of the TVöD with regard to the activities to be performed on a more

than temporary basis and the fulfilment of the personal or collective agreement requirements (job characteristics).

Part-time employment is possible.

The Federal Armed Forces promotes professional equality between women and men and therefore particularly welcomes applications from women.
In accordance with the Sozialgesetzbuch IX [Social Code Book IX] and the Disability Equality Act, we expressly welcome applications from severely disabled persons; the fulfilment of the requirements for the advertisement will be considered on an individual basis.

More information about the university and the professorship can be found at:

www.hsu-hh.de and www.hsu-hh.de/lts/de

Please send your application with the usual documents exclusively in electronic form (pdf file), quoting the reference number **ET-2025**, **by 22.09.2025** to:

personalabteilung@hsu-hh.de.

Note:
Information on data protection in the application process can be found on the website www.hsu-hh.de under the heading "Universität - Karriere - Datenschutzinformationen“.

Applications without reference number will not be considered and will be deleted immediately for data protection reasons.

FAMILIE IN DER HOCHSCHULE

Zertifikat seit 2023
audit familiengerechte hochschule