

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]; 26 hours per week)

for a limited period of 2 years.

The professorship's research focuses on basic civil laser research, with a particular focus on applications in spectroscopy. The research topics range from the development of XUV frequency combs to the investigation of non-linear effects in multipass cells and laser-matter interaction at pulse durations of less than 50 fs. The newly developed laser systems and spectroscopic methods offer broad potential for application in precise XUV spectroscopy and next-generation ultra-precise material processing.

Future work will focus on next-generation ultra-precise material processing using pulses of less than 50 fs at a wavelength of 1030 nm and its harmonics (515 nm, 343 nm). Various transparent materials such as glass, SiC, diamond, polymers and ceramics will be investigated, with research focusing on ablation, cutting and non-linear changes in the refractive index. 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 carried out using galvo scanner systems and specialized XY translation stages with nanopositioning accuracy.

Responsibilities:

- Investigation of various non-linear conversion processes for the fundamental wavelength of 1030 nm, with the aim of generating second and third harmonics with maximum efficiency at a pulse duration of ≤ 50 fs
- Investigation of the interaction of pulses of ≤ 50 fs at 1030 nm, 515 nm and 343 nm with various materials
- Systematic analysis of the results using a laser scanning microscope and an electron microscope, and evaluation of the data
- Application of the technologies developed in drilling, cutting and other processes of industrial relevance
- Assistance in teaching to the extent of basically 2,0 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 (Diploma [univ.] or Master) in the field of physics or engineering

Furthermore desired:

- Experience in non-linear optics, in particular the generation of second and third harmonics using femtosecond pulses
- Experience with techniques for characterizing ultrashort pulses, such as autocorrelators or FROG
- Experience with electronics and microcontroller programming
- 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

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
- Possibility of participation in the corporate benefits program
- 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. 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.

The German Armed Forces supports the goals of the National Integration Plan and welcomes applications from people with a migrant background.

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-1026**, **by 03.09.2026** 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.

