

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.-Ing. Pronin), a position is **available from the next possible date**

### **Research Assistant (m/f/d)**

**(salary group 13 TVöD [Collective agreement for the public service]; 26 hours per week)**

for a limited period of 3 years.

The scientific work is part of the third-party funded research project “Multi-Pass Cells for Next Generation Laser Plasma Accelerators”

The research activities of the professorship are focussed on basic civil laser research with a special 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<sup>-15</sup> 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 focus of the position offered is on further research into the approach developed in the professorship for non-linear  $\chi^2$  processes in multi-pass cells and the extension of this approach into the UV range. For the first time, phase matching of nonlinear processes in multipass cells was achieved with this method. This method is establishing itself as a separate non-linear platform. The professorship plays a central role in its continuous further development. Another current research topic of the professorship is the scaling of the energy of ultrashort pulses in the spectral distribution in multipass cells.

### **Responsibilities:**

- Research into various non-linear  $\chi^2$  processes in multipass cells and increase in conversion efficiency up to record values of over 90%
- Development of new methods for pulse energy scaling of nonlinear spectral propagation and pulse compression based on free-beam multipass cells
- Application of the developed technologies in the generation of higher harmonics (HHG) and frequency comb spectroscopy in the XUV range
- 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

### **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
- Main focus of study in Optics or photonics
- High motivation, excellent teamwork and creative problem-solving ability
- Ability to work independently, commitment and flexibility
- Strong interest in scientific work

### **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/](http://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](http://www.bwcarsharing.de)).

For questions related to scientific or technical aspects, please contact Univ.-Prof. Dr.-Ing. Pronin, Tel.: 040/6541-2756 or by e-mail: [oleg.pronin@hsu-hh.de](mailto:oleg.pronin@hsu-hh.de) or Johann Meyer by e-mail: [johann.meyer@hsu-hh.de](mailto:johann.meyer@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](http://www.hsu-hh.de) and [www.hsu-hh.de/lts/de/](http://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-1025**, by **05.06.2025** to:

[personalabteilung@hsu-hh.de](mailto:personalabteilung@hsu-hh.de).

Note:

Information on data protection in the application process can be found on the website [www.hsu-hh.de](http://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.

