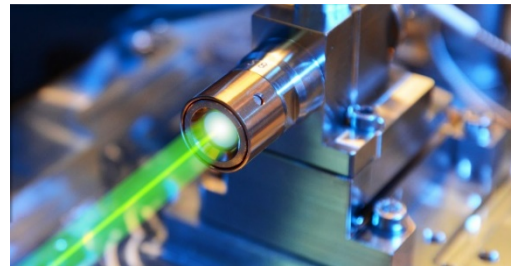
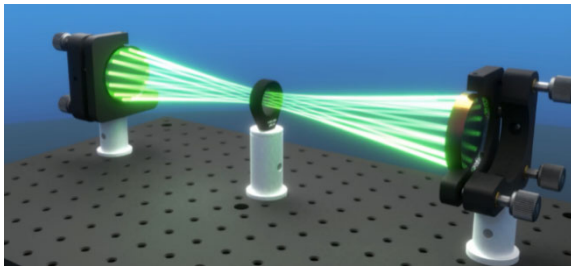


The Chair of Laser Technology at the Faculty of Electrical Engineering of the Helmut Schmidt University/Bundeswehr University, Hamburg (HSU/UniBw H) offers the post, to the earliest possible date, of a

PhD Student Position
(PhD candidate; pay grade E 13 TVöD; 26 hours per week)

for a limited duration of three years.



The research activities at the Faculty of Electrical Engineering focus on fundamental laser research for civil uses with a special emphasis on spectroscopic applications. Our fields of research range from the development of disk laser oscillators, dual-comb spectroscopy and XUV frequency combs to the investigation of non-linear effects in solids and the extension of laser technology in the infrared range [1,2]. The newly developed laser systems and spectroscopic methods offer a broad potential for applications in next-generation non-linear microscopy and nanoscopy, as well as in medical diagnostics, particularly, in breath analysis.

The main focus of the position offered is on the realization of different non-linear effects produced by ultrashort pulse lasers, such as self-phase modulation, soliton self-compression and Raman scattering within a novel geometry based on dispersive multipass cells (see figure, left). Not only is the demonstration of the feasibility of these non-linear effects planned, but also the scaling of energy and output. Combining this technology with the recently developed femtosecond dual-frequency comb thin-disk laser spectroscopy [3] is another very promising prospect. Parts of this project are planned to be implemented in cooperation with DESY in Hamburg and University of Regensburg.

This position will offer you the opportunity to advance the state-of-the-art ultrashort-pulse laser technology and related applications in close cooperation with our international research team.

[1] J. Zhang et al. und O. Pronin, „Multi-mW, few-cycle mid-infrared continuum spanning from 500 to 2250 cm⁻¹“, Light: Science & Applications 7, 17180, 2018.

[2] <https://www.hsu-hh.de/lts/>

[3] K. Fritsch et al. and O. Pronin, “High-power dual-comb thin-disk oscillator”, Talk CA-5.2, CLEO Europe conference, 2019

Areas of responsibility:

- developing new methods of non-linear spectral broadening and of pulse compression using a free jet multi-pass cell
- combining this technology with the recently developed dual-frequency comb disk laser oscillators
- application of the developed technology in novel non-linear ultrashort-pulse spectroscopy, microscopy and nanoscopy

Qualification requirements:

- university degree (German diploma or Master's degree) in Photonics
- good command of the English language

Desirable:

- candidate must be highly motivated and have the excellent ability to perform as a team member, while displaying creative problem solving capability
- capacity for independent work, commitment and flexibility
- candidate must be willing to complete his/her PhD degree

We offer:

- a multi-faceted, diverse and demanding position in an application-oriented research environment
- advanced individual training possibilities
- proportionate contributions to supplementary pension scheme
- workplace at a green campus university in the eastern part of Hamburg with flexible working hours and free sports programme within the occupational health scheme
- inexpensive food options at the university canteen (three times per day)
- possibility of using the Bundeswehr-owned car sharing

If you have any technical questions, contact Prof. Dr. Pronin, phone +49(0)40/6541-2756, e-mail: oleg.pronin@hsu-hh.de or Kilian Fritsch, phone: +49(0)40/6541-2119, e-mail: kilian.fritsch@hsu-hh.de.

The employment contract is based on the provisions of the pertinent German Public Service Collective Bargaining Agreement (Tarifvertrag für den öffentlichen Dienst, TVöD) in conjunction with the applicable Academic Fixed-Term Contract Act (Wissenschaftszeitvertragsgesetz, WissZeitVG). You will be classified in pay grade E 13 TVöD if you meet all the personal requirements and perform all the work assigned.

This position is open to persons of all genders. We explicitly welcome applications from women. Women will be given preferential consideration, if applicants are equal in aptitude, qualification and professional achievement in areas in which women are underrepresented, unless reasons concerning the personality qualifications of a fellow applicant takes precedence.

We explicitly welcome applications from handicapped people. Severely handicapped people and people of comparable status will be given preferential consideration, if applicants are equal in aptitude. They are only required to have a minimum of physical

aptitude. Individual handicap-related limitations will only preclude preferential consideration, if the profile of the post in question absolutely requires certain capabilities.

Information on data protection provisions within the scope of the application procedure can be found on the website of the Helmut Schmidt University/Bundeswehr University, Hamburg (HSU/UniBw H) under the heading "Universität - Karriere - Datenschutzinformationen".

Please send your application and the standard documents required – in electronic form (pdf file) only! – to the address below by 15.01.2020, stating the reference number (ET-2719):

personaldezernat@hsu-hh.de

NOTE: Your application cannot be processed without indication of the reference number and will be deleted in accordance with applicable data protection regulations.

