



29.08.2025

Scientist/PhD student (thin-disk multipass amplifier)

The Institut für Strahlwerkzeuge (IFSW) of the University of Stuttgart, founded in 1986, is renowned as one of the leading laser research centers worldwide. Its strength is based on a holistic research approach covering every aspect – from laser sources to their applications, and ranging from fundamental investigations to industrial technology transfer. The main activities at the IFSW are currently concerned with selected topics in the fields of laser beam sources (especially the thin-disk laser), optical elements and components for beam delivery and beam shaping, as well as fundamental investigations on the light-matter interaction, with the subsequent process development of macro and micro applications for industrial manufacturing.

Within our laser development and laser optics activity we aim to develop – in the frame of a DFG (Deutsche Forschungsgemeinschaft) and ICM (InnovationCampus Future Mobility) project – a high-power and high-efficiency thin-disk laser system delivering kW-class ultrashort pulses for their use in material processing. The targeted system shall include non-linear conversion modules to cover UV, visible, and MIR wavelength ranges.

The ultimate objectives will be to:

- design and implement a thin-disk multipass amplifier delivering ps and/or fs pulses with ~1 KW of average output power.
- design and implement non-linear conversion modules to achieve radiation with >500W in the visible (@ 515 nm), >100W in UV (@ 343 nm), multi-10W in DUV (@ 257-5 nm), and >100W in MIR (@ 1420 nm).
- implement self and predictive maintenance of the system using artificial intelligence coupled to already existing raytracing and laser amplification simulation tools (and to extend them further), to support and simplify the maintenance of the system during application trials.

For this we are looking for a

Scientist / PhD student (m/f/d)

Do you want to work on a challenging scientific project, have an above-average degree, and preferably have some knowledge and hands-on experience in optics, laser physics, and non-linear optics? Apply now!

The salary will be according to TV-L 13 (100 %) plus the usual benefits. The position offered is limited to three years.

The application deadline is 31.10.2025



Please provide your:

- Motivation letter
- Curriculum Vitae
- Transcripts (Bachelor and Master)
- The contact data of 2 reference persons (including letter of support)

Send your application to:

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The University of Stuttgart is committed to increasing the number of women in science and encourages qualified female candidates to apply. Applicants with a disability and equal qualifications will be given preference.