



The research group "Additive Manufacturing" of the Institute of Photonic Technologies (LPT) at the Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU) is looking for

Research Assistant/Doctoral Candidate (f/m/d)

for the project "Understanding the role of beam shape in laser materials processing, considering thermal field evolution".

In the **Additive Manufacturing** research group, we are dedicated to investigating the processes of laser beam melting and laser powder cladding, both of metals and plastics. Strong focal points include the use of **beam shaping** for customised laser-material interaction and research into new types of materials for additive manufacturing.

This project aims to improve the understanding of the effect of beam shape on the thermal field during laser materials processing. New beam shapes will be designed and tested specifically for laser powder bed fusion of metals (PBF-LB/M) using a combination of computational and experimental techniques with process monitoring used for process quantification. This results in a strongly inter-disciplinary project, with simulative, optical and experimental components, which will involve adapting test setups and developing analysis methods. In addition, the applicant will have the opportunity to publish the generated results in scientific journals and attend international conferences.

Responsibilities:

- Independent research activity to influence laser processes through the means of diffractive beam shaping
- Establish and deepen international and interdisciplinary cooperation with universities and research institutions
- Publish scientific results
- Grow with our team through a variety of challenges
- Initiate new research projects with government funding
- Active participation in the education of students, e.g. by providing support in teaching or supervising student research projects

Requirements:

- University degree (M.Sc.) in mechanical engineering, materials science, physics or a comparable course of study.
- Experience in the field of optics and/or programming is advantageous
- Willingness for personal and professional development in the context of a doctorate to Dr.-Ing., integrated into the SAOT as a doctoral researcher
- Exceptional motivation and initiative, ability to work on an interdisciplinary project
- Independent and self-reliant working style
- Strong communication skills and ability to work in a team
- Willingness to travel, e.g. to project meetings/conferences
- Very good level of English, basic level of German
- Interest in expanding the research group

Employment:

Temporary according to TV-L E13 (100 %), Starting date as soon as possible

Applications to:

Prof. Dr.-Ing. Michael Schmidt, sekretariat@lpt.uni-erlangen.de

Keywords:

PhD, Laser Processing, Beam Shaping, Additive Manufacturing, Powder Bed Fusion, Metals, Simulation, Optics