



inspire AG is the leading Swiss competence center for product innovation and advanced manufacturing. As a strategic partner of ETH Zurich, our mission is to transfer knowledge and technology from research to Swiss machine, electrical and metal industries.

The research group **Laser Material Processing** at inspire offers in collaboration with the **Advanced Manufacturing Laboratory (AML)** at ETH Zurich the following position:

Research Associate – Laser Surface Functionalization (bio-inspired) with the option of a PhD thesis at ETH Zurich

Our research group uses pulsed lasers to process metals as well as ceramics and to functionalize their surfaces. The advantages of pulsed laser processing are that all materials can be processed with high precision and force-free. In addition, new surface functions can be realized selectively, without the use of chemicals or masking.

The main goal of your work is the development of laser processes to add new functionalities to industrial products. This functionality can be bio-inspired such as **modified wettability (lotus effect)**, **modified tribology (shark skin)** or **generation of interference colors (butterflies)** or they can be purely **technical** to change the electrochemical, the mechanical or biological properties (biocompatibility and cell growth) of the surfaces. The research is part of multiannual industrial research projects and includes the development of processes and processing strategies with pulsed lasers and methods for materials characterization.

Your tasks:

- Development and investigation of laser processes and processing strategies to create surface functionalities by changing the composition and/or texture and structure of the material surface
- Plan and perform experiments (DoE) in the open laser lab
- Transfer of newly developed processes to parts and components of machines
- Testing, evaluation and validation of the properties and lifetime of functionalized surfaces
- Generalization of research results in contexts, guidelines, models and/or simulations to make them transferable to new application areas (different or new materials, requirements, or products)

Required experiences:

- Master's degree (ETH, university) in materials science, physics, mechanical engineering or similar.
- Excellent grades to meet the requirements for doctoral studies at ETH Zurich
- Knowledge of laser material processing and materials science
- Experiences in materials and surface analysis (e.g., microscopy, SEM/EDX)
- A good knowledge (written/oral) of English is a must. Knowledge of German is preferred.

Required soft skills:

- Highly self-organized and structured way of working and solution orientation
- High motivation and willingness to learn new skills
- High level of teamwork, positive work attitude and creativity
- Willingness to teach (max. 20%)

We offer a full-time scientific assistant position with the option of a PhD thesis at ETH Zurich. Through the close cooperation with our project partners, you will quickly establish contacts with Swiss industry, and in our young team you will work at the forefront of today's knowledge in laser material processing. Please send your **full application (cover letter, transcripts, CV, references)** to Dr. Timo Schudeleit, Head of Laser Material Processing, inspire AG (schudeleit@inspire.ethz.ch). Please also visit our websites www.inspire.ethz.ch and <https://advanced-manufacturing.ethz.ch/>.