



inspire AG is a technology transfer organization with strong links to ETH Zürich. Its mission is to conduct research in the field of production engineering and to bring the scientific results and insights to the Swiss machine, electrical and metal industries.

The research group inspire Materials, Processes and Sustainability offers the following position:

Scientific Assistant – Development of Aluminium Alloys for High-Speed Laser Cladding (100%) with the option of a PhD thesis at ETH Zürich

High-Speed Laser Cladding (HSLC) is a new laser cladding process with high productivity, low heat input and excellent bonding. At inspire, a new HSLC demo production unit is being set up to further develop the process for application of new materials, especially aluminium alloys, and their optimization to the specific process conditions.

HSLC exhibits solidification rates in a range between conventional laser cladding and SLM, and much higher than for standard processes such as casting. Subsequently, alloys that are designed for those processes cannot be applied by HSLC. Therefore, alloys must be specifically designed to the production process to yield high-performance results. It is our aim to develop aluminium alloys specifically for the HSLC process, as it is an ideal material for many lightweight applications.

Your Tasks

Starting with a standard aluminium alloy for establishing a robust processing window, it will be your task to adapt the alloy to the specific processing conditions that HSLC offers. For this, you employ the whole process chain from material simulation (ThermoCalc), lab-scale powder atomization and HSLC. The aim is to yield a defect-free coating with ideal properties for the use as abrasion resistant and heat conducting surface.

A scientific assistant position (with the possibility to write a Ph.D. thesis at ETH Zürich) is available immediately. You have a graduate degree in materials science, mechanical engineering, or a related field. The research is part of a project that will be realized in close collaboration between inspire and a Swiss industrial partner.

Do you also thrive on working on a topic, which is on the cutting edge of material science and manufacturing technologies, directly related to industry, and has an impact on the Swiss economy as well as addressing sustainability aspects?

I'm looking forward to answering your questions in more detail and to receiving your application with motivation letter, CV, publications/MSc thesis, and transcripts of grades (papis@inspire.ethz.ch). Together, we will work on the future of aluminium alloys for lightweight applications!