

The Chair of Materials for Additive Manufacturing at the University of Wuppertal is now assigning a

## **Master thesis: »Electron beam powder bed fusion (PBF-EB) of a novel molybdenum base super-high-temperature alloy«**

The research of the Chair of Materials Science and Additive Manufacturing deals with a combination of materials science, laser technology, additive manufacturing technology, technical chemistry and particle technology. Among other alloys, the metal group is focusing on the development of advanced high temperature alloys for application in aerospace. Additive manufacturing by PBF-EB enables the processing of such alloys through operation at high process temperatures. In the scope of this master's thesis, a PBF-EB processing route for a novel molybdenum-base super-high-temperature-alloy shall be developed. The processed material is to be validated by a variety of different metallographic and mechanical testing technologies.

### **1) Your tasks**

- Additive processing of a novel super-high-temperature alloy via PBF-EB
- Independently operate a metal additive manufacturing PBF-EB system
- Characterization of your produced material samples with methods as microscopy, SEM, hardness testing, mechanical testing
- Evaluation and interpretation of the test results
- Documentation and presentation of the results within the framework of a master's thesis

### **2) What you bring along**

- Background in mechanical engineering or material science
- Enthusiasm for current research in the field of metal additive manufacturing
- Motivation, ability to work in a team and independently
- Enjoyment of practical, experimental work
- Good german and english language skills
- Systematic, careful and reliable work style
- Ideally previous knowledge in the field of additive manufacturing and material science

### **3) What you'll gain**

- Close guidance and supervision throughout your thesis
- Hands-on experience in metal additive manufacturing and material science
- Access to advanced lab equipment
- High degree of independent work
- Flexible working hours in a collaborative and supportive team

Apply now: Be part of our additive manufacturing research and shape future high-temperature alloys. We are looking forward to receiving your application.

**Jan Niklas Petenati M.Sc.**

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