

THEVA GmbH is an international, medium-sized high-tech company in the area of superconducting technology and special-purpose systems for vacuum coating technology. For more than two decades THEVA has been developing process technologies for the manufacture of high temperature superconductors for power transmission and power engineering. In our pilot production facility in Ismaning near Munich, we manufacture and distribute superconductors with a high power density.

To strengthen our R&D team, we are looking for the next possible date for a

Bachelor's or Master's Thesis (m/f)

Depending on your qualification, following tasks will be performed during your work:

- Optimization of LaMnO_3 deposition parameters
- Structural and compositional analysis (XRD, SEM, EDS, ICP)
- Deposition of $\text{GdBa}_2\text{Cu}_3\text{O}_{7.5}$ HTS films on LaMnO_3 buffered substrates
- Analysis of superconducting properties of the HTS films (I_c , T_c)

The fabrication of $\text{ReBa}_2\text{Cu}_3\text{O}_{7.5}$ (Re: rare earth element) (ReBCO) high temperature superconductor (HTS) based coated conductors requires the development of buffer layers (intermediate layers between a metal tape and a superconductor).

These buffer layers have to fulfill a list of requirements among which are chemical stability and compatibility with adjacent films. Inclined substrate deposited MgO, developed by THEVA, is used as incident buffer layer, because it creates a texture on metal substrate for the growth of HTS film and serves as a diffusion barrier for substrate elements.

However, MgO is a hygroscopic material and has a high lattice mismatch with HTS, and therefore creates some technical issues for the consecutive deposition process. LaMnO_3 is a perspective candidate as a terminal buffer layer due to its compatibility with MgO surfaces and is expected to provide a good template for growing ReBCO.

We expect:

- You study natural sciences or technology (materials science, thin film technology, vacuum technology, physics etc.)
- You are a motivated and energetic person
- You are an organized and structured person
- You take over responsibility for the process you are in charge of
- You are able to write a technical report

You expect:

- Fair salary
- Extensive training
- Continuous support from the supervisor

Please send your complete application documents with CV, as PDF-file via e-mail with keywords in the aim

LMO bachelor or **LMO master** to:

THEVA Dünnschichttechnik GmbH
Peter-Jochen Heuberger
Rote-Kreuz-Str. 8
85737 Ismaning
Tel.: 089 923346 0
E-Mail: hr@theva.com