Job posting

Type of position
☑️ scientific
☐ administrative

Target group
☑️ graduates
☐ post docs
☐ other

Title
PhD position ((m/f/d) (TV-L 13, 100%, 3 years)) - Thin film materials libraries.

Institution
The Ruhr-Universität Bochum is one of the leading research universities. The university draws its strengths from both the diversity and the proximity of scientific and engineering disciplines on a single, coherent campus. This highly dynamic setting enables students and researchers to work across traditional boundaries of academic subjects and faculties. The chair Materials Discovery and Interfaces at the Institute for Materials develops new multifunctional materials by using combinatorial deposition techniques (material libraries) and high throughput characterization methods. For this purpose, unique experimental facilities are directly available (6 combinatorial sputtering systems, high-throughput characterization methods).

Position
In order to strengthen the international and efficient team at the chair, the position of a PhD student (m/f/d) for the project "Identifying Composition-Process-Defect-Structure-Property Correlations in (La)-Co-X-Y-O Thin Film Libraries" is available as soon as possible. The project is part of the CRC TR247 entitled "Heterogeneous Oxidation Catalysis in the Liquid Phase".

The goal of the project is to systematically capture interrelationships in new oxide catalyst materials. In the first funding period of the SFB, the subproject developed reproducible synthesis routes for Fe-Co-O spinel and La-Co-O perovskite layers and determined dependencies of layer properties - such as microstructure, crystallographic phases, electrical resistivity, band gap energy and catalytic activity for the oxygen evolution reaction (OER) - on composition and process parameters.

In the second funding period, large and consistent data sets on Co-based multinary polycrystalline oxide film systems will be established by combinatorial synthesis of material libraries and their high-throughput characterization. The impact of using additional elements in the spinel and perovskite systems will be systematically explored: i.e., their influence on the electrical resistivity, microstructure, phases, and morphology, which are key properties for the application of layered oxides as electrocatalysts for OER.

We are looking for a highly motivated scientist with excellent knowledge in the field of materials science and thin films, who is willing to tackle new, exciting and promising topics in an
interdisciplinary environment and has the ambition to efficiently generate, publish and bring new scientific knowledge to application with the exceptional experimental capabilities available.

**Responsibilities**
- Fabrication of spinel and perovskite thin-film material libraries using combinatorial sputtering
- High throughput characterization of material libraries
- Interdisciplinary collaboration in the Collaborative Research Center (Materials Science-Electrochemistry)
- Publication of results

**Requirements**
- Completed studies with a focus on materials science, with very good results, in the field of mechanical engineering (specialization in materials), materials science or materials chemistry
- Practical experience in thin film fabrication, preferably sputtering
- Practical experience in characterization of thin films, e.g. SEM, EDX, XRD, SPM
- English language fluency, both written and spoken
- Interest in publications

**Application procedure (deadline etc.)**
Please send your complete and informative application documents (informative cover letter, 1-page motivational letter, CV with references, if applicable own publications) by September 25th 2023, quoting the job application number "ANR 2286", as one pdf document to the specified e-mail.

Travel expenses, accommodation costs and loss of earnings or other application costs for interviews cannot be reimbursed. The extent of the teaching obligation is based on § 3 of the Teaching Obligation Ordinance NRW.

RUB stands for diversity and equal opportunities. Therefore, we promote the cooperation of heterogeneous teams and the professional path of people who are underrepresented in the respective fields of work. RUB explicitly wishes women to apply. In areas where they are underrepresented, they are given preferential consideration if they have the same qualifications. Applications from people with disabilities are also very welcome.

**Contact**
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