Research Topic: Molten Salt Synthesis of High-Entropy Oxides for Thermoelectric Materials

Project Description:

In this project, our objective is to employ molten salt synthesis techniques to produce high-entropy perovskite oxides for investigation of their thermoelectric properties. High-entropy perovskite oxides exhibit promising potential for achieving high thermoelectric performance due to their distinctive chemical compositions and structural complexities. By carefully controlling the composition and processing parameters, we seek to tailor the thermoelectric properties of these materials for enhanced efficiency.

Research Goals:

- Develop novel synthesis routes based on molten salt utilization for high-entropy perovskite oxide synthesis.
- Characterize the crystal structure and electrical and thermal transport properties of the synthesized materials.
- Unveiling the relationship between the thermoelectric properties and processing parameters.
- Explore the underlying mechanisms governing the thermoelectric behavior of high-entropy oxides.

Qualifications:

Background in materials science, chemistry, physics, or related fields.

Experience with synthesis and characterization techniques.

Strong analytical and problem-solving skills.

Enthusiasm for interdisciplinary research and collaboration.

This topic is suited for ARL or Master thesis

How to Apply:

Interested candidates should submit a resume/CV and a brief cover letter outlining their interest in the position and relevant experience to xingxing.xiao@mr.tu-darmstadt.de before **8 May 2024**.