

Master thesis:

Development of the alternative deposition routes for Hybrid Perovskite films and their evaluation



The Chair Technology for Thin Film Devices (TFD, office HFT 5-2, Institute for High-Frequency and Semiconductor-System Technologies, Faculty IV, Technical University Berlin) has commissioned new equipment for alternative crystallization routes of hybrid perovskites (HPs). Among them are the intercalation chamber for heterogeneous reaction between PbHal_2 and FAHal / MAHal (Hal: Cl, Br, I) and the IR-lamp for re-crystallization. Apart from the ordinary characterization methods, such as XRD, UV-Vis spectroscopy, ellipsometry and AFM, TFD has at the disposal special characterization tools for evaluation of opto-electronic properties (IV curves, impedance spectroscopy, transient photocurrent & photovoltage measurements, charge extraction by linearly increasing voltage (CELIV), etc.). The bachelor/master student will learn these special methods and optimize simple thin film devices.

Tasks

- preparation of PbI_2 and HP thin films by spin-coating followed by intercalation or/and re-crystallization
- conceptualization of thin film devices (photo-detectors, photo-diodes, transistors or solar-cells) based on available materials (hole- and electron-transport layers)
- characterization of devices by various methods (IV curves, impedance spectroscopy, transient photocurrent & photovoltage, charge extraction by linearly increasing voltage (CELIV), etc.)

Requirements

- currently enrolled in a bachelor or master program
- high motivation and interest in the field of thin film devices
- readiness to work in a lab environment
- clear communication, presentation, writing, and problem-solving skills

What do we offer?

- getting closer to the modern characterization methods
- flexible working hours
- good results will be published in peer-review journals

How to apply?

Please send your formal application (consolidated PDF) by email to s.vinothkumar@tu-berlin.de. The application must include a cover letter, CV, and supporting documents.

Contact for further information:

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