



Universität Stuttgart

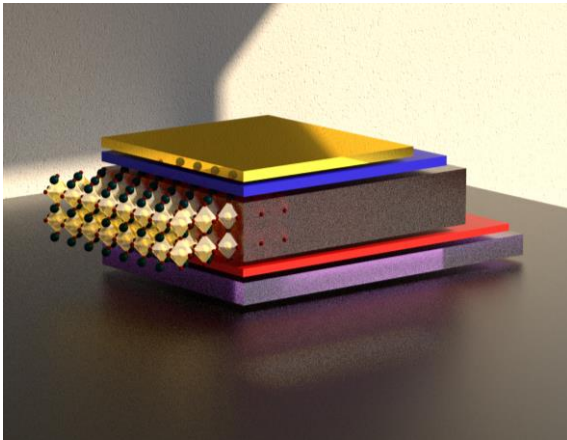
Institut für Photovoltaik (*ipv*)
Neue Materialien



**Bachelorarbeit
Forschungsarbeit
Masterarbeit**

Synthesis and Characterization of Single Crystalline Perovskite Solar Cells

An immense progress in power conversion efficiency (PCE) up to 25% has rendered metal-halide perovskite solar cells (PSCs) as the game-changer in the field of photovoltaics. Solution processed polycrystalline thin-film PSCs have been established very successfully. The journey towards highly stable PSCs in ambient conditions has opened a new door for single crystalline PSCs. Owing to the absence of grain boundaries, single crystalline PSCs are considered to be comprising of less structural defects and hence, lower trap densities, higher charge carrier mobilities and lesser non-radiative recombinations. Inverse temperature crystallisation (ITC) is one of the efficient methods to grow single crystalline perovskite thin films. We are here offering a Forschungsarbeit (optionally leading to Master thesis) for the optimization of wide bandgap single crystalline PSCs.



Tasks:

- Synthesis of single crystalline thin films via inverse temperature crystallization method.
- Fabrication of solar cells.
- J-V analysis of solar cells.
- Chemical and structural characterization.

Requirements:

- Background in electrical engineering or chemistry is preferable.
- Good English or German knowledge.
- Sense of responsibility and accuracy.
- Hands-on-mentality.

Thesis can be started in Sep, 2021. You should be able to work in a systematic manner. The report can be written in German or in English.

If you are interested, please feel free to contact:

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