

Universität Stuttgart

Institut für Photovoltaik (ipv)

Neue Materialien

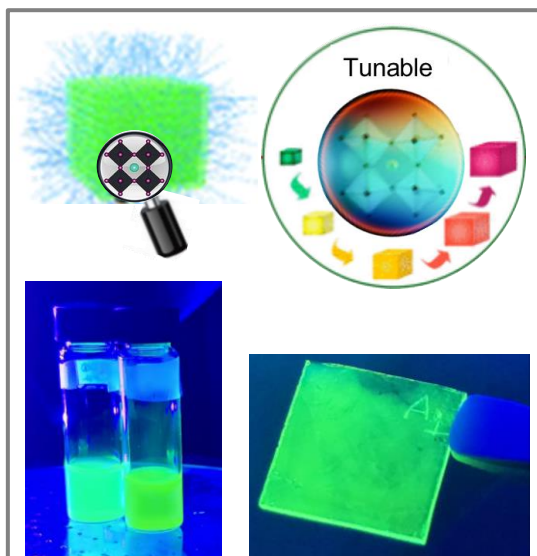


Forschungsarbeit
Masterarbeit

Investigations on Perovskite Quantum Dots for Optoelectronic Applications

Perovskite quantum dots (PQDs) have emerged as a promising class of optoelectronic semiconductors due to their outstanding optical and electronic properties, including their high photoluminescence quantum yield, tunable bandgap, and excellent charge transport properties. Such unique characteristics make them very suitable for emerging and innovative optoelectronic applications, such as solar cells, light-emitting diodes (LEDs), single-photon sources, quantum computing, and photodetectors.

We offer a Forschungsarbeit or master thesis to study PQD synthesis by hot- or cold-injection methods. This project will focus on the preparation, characterization and application of PQDs with the aim to improve their tunability and optoelectronic efficiency.



Tasks:

- Preparation and characterisation of PQDs according to literature procedure.
- Optimisation of the synthesis based on the results
- Tuning the composition to engineer the band gap, and emission quantum yield.
- Test of the PQDs for solar cell application in collaboration with coworkers

Requirements:

- A background in chemistry, material science or electrical engineering
- Decent English or German knowledge.
- Sense of responsibility and accuracy.
- Capability to work in a structured way.

The earliest day to start the thesis is the 3rd of March 2025.

The final report can be written in **English or German**.

If you are interested, please contact:

Supervisors: Dr. Maurice Conrad, Dr. Bekele Teklemariam

maurice.conrad@ipv.uni-stuttgart.de

0711 / 685-60890

Room U1.235, Pfaffenwaldring 47, 70569 Stuttgart

www.ipv.uni-stuttgart.de

