Nanooptics Group

Prof. Hartschuh

Master thesis (m/f/d):
Solution processed NIR solar cells

Colloidal quantum dots (CQDs) are nanometer-scale semiconductor particles synthesized in and processed from solution. This allows the use of CQD inks to be printed onto flexible substrates for rapid, low-cost fabrication of solar cells. Our interdisciplinary research on CQD solar cells spans materials design and device engineering. Through these, we aim to fabricate a fully solution processed of CQD solar cells.

Task description:

- Synthesis of quantum dots based on the hot-injection method.
- Ligand exchange of quantum dots from long organic chain to a short conductive ligand.
- Fabrication of the thin film quantum dots in order to build a solar cell.
- Electro-optical characterization of the final solar cell.

Qualifications: Student of material science, chemistry and related topics. Ideally having of experience in hot injection synthesis or synthesis of nano-particles or nano-crystals.

Benefits:

Working in a multidisciplinary, international and dynamic team.

Contributing to our future publications.

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