

INM-KOLLOQUIUM

“PHOTONIC MATERIALS FOR ENERGY-SAVING APPLICATIONS”

Prof. Dr. Gabriel Lozano
Universität Sevilla, Spanien

Dienstag, 17.07.2018, 11.00 Uhr

INM, Leibniz-Saal, Campus D2 5
Gastgeber: Prof. Dr. Tobias Kraus

How light interacts with matter is central to optical technologies from solar cells to light-emitting devices. Advanced photonic materials enable a tailor-made control over this interaction, whether light is being absorbed or emitted. In this talk I will discuss how the absorption and emission properties of nanomaterials can be devised by providing them with the adequate photonic environment. Then, I will demonstrate that different designs of integrated photonic architectures allow precise control of colour and directionality of solid-state lighting converters and enhance the light-harvesting efficiency and aesthetic properties of dye-sensitized and perovskite solar cells.

Some recent papers:

- ▶ G. Lozano, The role of metal halide perovskites in next-generation light-emitting devices, *J. Phys. Chem. Lett.*, 2018.
- ▶ D. Geng et al., Photonic structuring improves the colour purity of rare-earth nanophosphors, *Mater. Horiz.*, 2018, DOI: 10.1039/C8MH00123E –cover story-
- ▶ D. Geng et al., Photonic Tuning of the Emission Color of Nanophosphor Films Processed at High Temperature, *Adv. Optical Mater.*, 2017, 5, 1700099 –cover story-
- ▶ J. M. Miranda Munoz et al., Design and Realization of a Novel Optically Disordered Material: A Demonstration of a Mie Glass, *Adv. Optical Mater.* 1700025 (2017).
- ▶ K. Szendrei et al., Fluorescent Humidity Sensors Based on Photonic Resonators, *Adv. Opt. Mater.* 5, 1700663 (2017).
- ▶ J. M. Miranda Munoz et al., Efficient bifacial dye-sensitized solar cells through disorder by design, *J. Mater. Chem. A* 4, 1953 (2016).
- ▶ W. Zhang et al., Highly Efficient Perovskite Solar Cells with Tunable Structural Color, *Nano Lett.* 15, 1698 (2015)
- ▶ M. Anaya et al., Optical Description of Mesostructured Organic-Inorganic Halide Perovskite Solar Cells, *J. Phys. Chem. Lett.* 6, 48 (2015).

Wir laden 15 Minuten vor Beginn zu einem Get-together mit dem Referenten ein.

KONTAKT

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