

## Novel processes towards the direct storage of solar energy

PI Talk

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Functional Nanosystems

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Energy from sunlight is a promising alternative solution for the global sustainable energy crisis. However, there is a significant drawback related to the intermittency of the Sun. A potential solution relates to the use of solar energy to produce useful chemicals, i.e. photocatalysis. Alternatively, novel technologies are developed that permit the direct storage of solar energy. In my group, we are currently investigating novel processes that work towards the latter strategy by investigating nanomaterials that act as light-charged (nano-)capacitors. In this talk, I will present our work towards the understanding of the fundamental concepts underlying this novel concept. I will present our endeavors in the production of novel nanomaterials, their photophysical and theoretical characterization. I will give insights into the challenges of device fabrication for this novel system.



Ilka Kriegel started studying nanomaterials during her PhD at the Ludwig-Maximilians-University in Munich, Germany accompanied by a research stay at the University of Chicago, IL, USA. During her first postdoc at the Politecnico di Milano, Italy, she got insight into the ultrafast spectral response of hybrid nanomaterials. A Marie-Curie (global) fellowship brought her to the Molecular Foundry, Berkeley, CA, USA and the Italian Institute of Technology (IIT), Genova, Italy, extending her knowledge to two-dimensional materials. Ilka is now head of the Functional Nanosystems group at IIT holding an ERC Starting Grant (Light-DYNAMO) and an ERC POC (CONDINKS). She is further the coordinator of a collaborative FET Proactive grant (LIGHT-CAP). Her major research interests lie in the exploitation of functional nanosystems for energy and environment. Ilka is mother of three children.