

LNQE-Afternoon 12.05.2021

Two talks from the groups of the Laboratory of Nano and Quantum Engineering

Wednesday, 12.05.2021 at 16:15 - 18:00

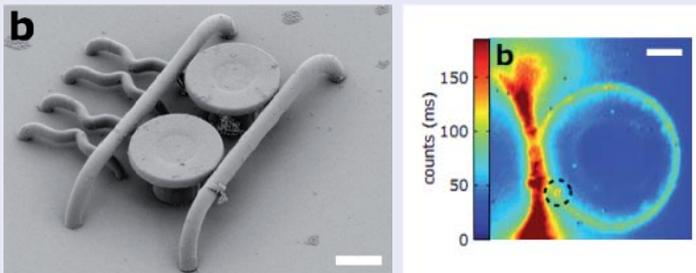
See WWW.LNQE.uni-hannover.de for the access link

Prof. Dr. Andreas Schell

Institute for Solid State Physics, Leibniz University Hannover

Hybrid assembly of the quantum optical elements

We will show our ongoing efforts to implement a quantum photonic platform using the so called hybrid approach for the assembly of quantum photonic elements. In the hybrid assembly approach, structures and emitters from different materials are combined in order to exploit the specific strength of the individual material while avoiding possible disadvantages by use of complementary other materials. This approach is highly flexible and can be adapted to many different material systems and structures. In particular, we will introduce techniques based on scanning probe microscopy and three-dimensional laser writing. The hybrid quantum photonic elements assembled with these approaches include emitter coupled to on-chip resonators and waveguides, different kinds of fiber integrated cavities and incorporate a variety of emitter such as NV centers, quantum dots, and defects in two-dimensional materials, such as hexagonal boron nitride.



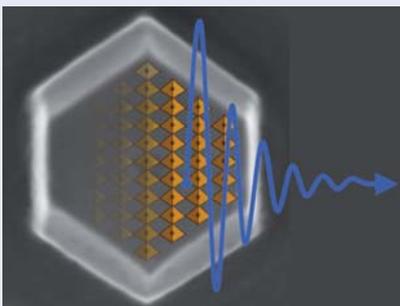
Prof. Dr. Sebastian Polarz

Institute for Inorganic Chemistry, Leibniz University Hannover

Spotlight on Nanocrystalline and Molecular Semiconductors

It is well known that crystallite size has an influence on properties of semiconductors. Several examples will be presented, which demonstrate that also shape has huge impact on optical, optoelectronic, (photo-)catalytic or magnetic functionalities of the materials (ZnO , TiO_2 , $\text{CH}_3\text{NH}_3\text{PbX}_3$, EuO).

We will also reflect on, how defects are not only modulating properties, but may be the decisive factor. Minimization of size and ultimate definition of shape is possible for molecular semiconductors, and this will be discussed in the second part of the presentation on π -conjugated surfactants with inorganic head groups.



Presented by:
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