

# UniCat Collqouium

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## *From nanoparticles to complex functional materials – a view from the bridge*

Nanoparticles are essential building blocks for many energy-related applications.[1-4] We have focused on nanoparticles' synthesis in solution since this approach is not limited to one particular class of materials. Thus, it gives us flexibility to tailor their composition and properties in respect to the application, for examples in Liion batteries[2] or room temperature chemo-resistive gas sensors.[3-4] However, the formidable challenge for the intensification of crystallization processes in solution is reduction of reaction time and energy consumption without compromising the control over the nanoparticles' properties.

In this talk, I will present our recent efforts to: (a) increase the information content from in-situ X-ray synchrotron experiments to establish predictable and efficient synthesis strategies, [2,5] (b) design of complex functional devices,[3-5] and (c) design a new on-chip reactors to maximize the speed of reactions and minimize the energy consumption.[6-7]

Selected own references:

[1] Adv. Mater. 26 (2014) 235-257

[2] Chem. Mater. 26 (2014) 4505-4513

[3] Angew. Chem. Int. Ed. 54 (2015) 340

[4] Adv. Funct. Mater. 25 (2015) 2537-2542

[5] Chem. Mater. 26 (2014) 2086-2094

[6] Nanoscale 5 (2013) 5468-5475

[7] Highlight in SPIE Newsroom 2014, DOI. 10.1117/2.1201401.005291

**Wednesday, January 20, 2016 at 5:15 PM**

TU Berlin, Institute of Chemistry  
Straße des 17. Juni 115, 10623 Berlin

Building C, Lecture Hall **C 264**

**Prof. Gurlo (TUB)**

Organizer

Coffee and cake will be served 30 minutes before the lecture. Guests are cordially invited to attend!  
Prof. Dr. Matthias Driess - Chair of the Cluster of Excellence UniCat - [www.unicat.tu-berlin.de](http://www.unicat.tu-berlin.de)



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