



PHYSIKALISCHES KOLLOQUIUM

des Fachbereichs Physik
der Johann Wolfgang Goethe-Universität Frankfurt

Mittwoch, den 15.06.2022, 16 Uhr c.t.
Großer Hörsaal, Raum _0.111,
Max-von-Laue-Str. 1

Dr. Sven Barth

Physikalisches Institut – Goethe Universität



"Synthesis of Inorganic Nanomaterials under Non-Equilibrium Conditions"

The synthesis of nanomaterials and especially the molecule-to-material conversion under non-equilibrium conditions is dependent on precursors used for their formation. The lecture will focus on gas-phase growth techniques for the synthesis of inorganic nanomaterials and discuss the aspects of precursor selection for focused electron beam deposition (FEBID) as well as the formation of Ge-based nanomaterials of metastable composition.

In this respect, the growth of single crystalline Ge-based nanomaterials with metastable composition will be discussed and the overall impact of microstructure/composition on their physical properties shall be highlighted. In addition, new precursors for FEBID techniques, which is an approach for direct writing of nanostructures, have been introduced and significant improvements in the understanding of fragmentation processes in the electron-induced fragmentation process have been gained. The fragmentation process leading to an inorganic deposit can be explained from a chemical point of view using model reactions and comparison to actual FEBID deposits' composition. Some features will be discussed on selected examples from our recent investigations.

Die Dozenten der Physik

local host: Prof. Dr. Jens Müller | j.mueller@physik.uni-frankfurt.de