

Jueves 31 de AGOSTO 2023

12.00 h

Sala de conferencias
Edificio I+D+i, Campus Río Ebro

INMA

Impulso

Precursors for Direct-Write Nanofabrication with Electrons and Ions



Sven Barth

Institute of Physics, Goethe
University Frankfurt

Focused electron beam deposition (FEBID) allows the spatially controlled formation of nanoarchitectures on a wide range of substrate materials. The composition and purity of the as-grown material can be tailored by specific precursor development, which provides a chemical impetus for advances in this field. Based on the knowledge gained by surface science studies, several different reaction paths could be assigned according to the composition gained in FEBID experiments. The talk will briefly summarize the state-of-the art of precursors used and introduce new single-source precursors.

Moreover, specific effects of writing strategies, e.g., serpentine vs. spot deposition, in FEBID and comparison between FEBID/FIBID in the as-deposited materials properties will be discussed. The majority of the talk will be focused on heterometallic precursors. The talk will illustrate the unique opportunities of these more complex precursors in terms of fundamental lessons learned as well as their applicability for the direct writing of functional materials.

In addition, new approaches based on FEBID nanostructures, such as 3D nano-micro-CVD and a new, controlled phase separation on the nanoscale, will be presented.