



Contribution ID: 54

Type: Talk

[13] Liquid Phase Epitaxy of Molecular Frameworks on Solid Substrates: A New Class of Designer Solids ?

Thursday 24 August 2017 09:00 (40 minutes)

With regard to the development of approaches to realize “Designer Solids” by programmed assembly of building units taken from libraries, recently metal-organic frameworks (MOFs) have attracted a huge interest. Here, we will focus on MOF-based electrochemical [1,2], photoelectrochemical [3] and photovoltaic devices [4,5]. Internal interfaces in MOF heterostructures are also of interest with regard to photon-upconversion [6] and can be used for the crosslinking of sandwiched, reactive monomers [7]. Since the fabrication of reliable and reproducible contacts to MOF-materials represent a major challenge, we have developed a layer-by-layer (lbl) deposition method to produce well-defined, highly oriented and monolithic MOF thin films on a number of different substrates.

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Session Classification: Plenary Session