Master Thesis

The Chair of Materials for Electronics and Energy Technology (WW6) is offering the following master thesis topic to interested students:

Development of an Optoelectronic Hybrid Device that Combines Electrochromic and Photovoltaic Functionalities

Details:

With the perspective of an electrically autonomous, building-integrated application (e.g. windows, glass facades), the goal of this work is to develop a solution-processed device, which has photovoltaic properties (i.e. it converts light into electricity) as well as electrochromic properties (i.e. it changes color/opacity when voltage is applied). The individual components need to be optimized optically as well as electrically towards a harmonizing interaction and finally combined into a single hybrid device.

Materials and methods to be used are for example: electrochromic metal oxide nanocrystals, polymeric electrolytes, photoactive π-conjugated donor polymers and non-fullerene acceptors, thin film coating (doctor blade), ultra-short pulse (fs) laser patterning, optical (UV/Vis) and electrical (J-V) characterization…

The work will be conducted at the Energie Campus Nürnberg and will be supervised by Prof. Dr. Wolfgang Heiß (Solution-Processed Semiconductor Materials) in collaboration with Dr. Andreas Distler (Solar Factory of the Future)

Starting date: ASAP

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