Hybrid Inorganic/Organic Systems for Opto-Electronics

Collaborative Research Centre 951

Special Colloquium Announcement

of the Collaborative Research Centre 951
"Hybrid Inorganic/Organic Systems for Opto-Electronics"

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Luminescent Solar Concentrators: The next generation of transparent photovoltaic devices

Time: Thursday, February 08, 2018, 3 p.m. **c.t.**

Place: IRIS Adlershof, Zum Großen Windkanal 6, Room 007 (ground floor).

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The transition to fully energetically sustainable architecture through the realization of net zero-energy buildings is currently in progress in areas with low population density. However, this is not yet true in cities, where the rooftop space is too scarce to accommodate the photovoltaic modules necessary for sustaining the electrical requirements of tall buildings. Thus, new technologies are being investigated to integrate solar-harvesting devices into building façades and street furniture in the form of photovoltaic windows or envelope elements. Luminescent solar concentrators (LSCs) are the most promising technology for semi-transparent, electrodeless photovoltaic glazing systems that can be integrated 'invisibly' into the built environment without detrimental effects to the aesthetics of the building or the quality of life of the inhabitants. After 40 years of research, recent breakthroughs in the realization of colloidal nanostructures with broadband spectral coverage and suppressed reabsorption have boosted the performance of LSCs to such a degree that they might be commercialized in the near future. In this presentation, the successful strategies that have allowed this change of pace, will be discussed examining and comparing the different classes of suitable nanoparticles and waveguide materials.