

GESELLSCHAFT DEUTSCHER CHEMIKER e.V. ORTSVERBAND FREIBURG-SÜDBADEN

Vortragsankündigung

Montag, 18. Juli 2011, 17:15 Uhr

Hörsaal Chemie, 79104 Freiburg, Albertstr. 21

Professor Dr. h.c. mult. Michael Grätzel, Ph.D.

Institute of Chemical Science
Engineering Faculty of Basic Science
EPF Lausanne, Schweiz



Molecular Photovoltaics and Mesoscopic Solar Cells

Learning from the concepts used by green plants in solar energy harvesting and conversion, we have developed a molecular photovoltaic device that is based on the sensitization of nanostructured oxide films by a molecular chromophore or a semiconductor quantum dot. Following its inception in 1985, the dye sensitized mesoscopic solar cell was the first device to use a three-dimensional interpenetrating network (bulk) junction for solar light energy harvesting and conversion. As in natural photosynthesis, the role of the sensitizer is to absorb light and generate electric charges, which are collected as electric current. The latest progress in the molecular design of sensitizer and charge transport materials has enabled unprecedented photovoltaic performance to be attained, reaching 12–13% on the laboratory cell scale and 10% on the PV module level, fostering first industrial applications. Mass production of flexible light-weight cells on the megawatt scale has started in 2009. The low cost and ease of production of the new cell will benefit large-scale applications. These systems will promote the acceptance of renewable energy technologies, not least by setting new standards of convenience and economy.



A dye-sensitized solar cell panel driving a fan from ambient light (courtesy Sony).

Gäste sind herzlich willkommen!

Prof. Dr. Stefan Weber

– Vorsitzender des Ortsverbandes Freiburg-Südbaden –