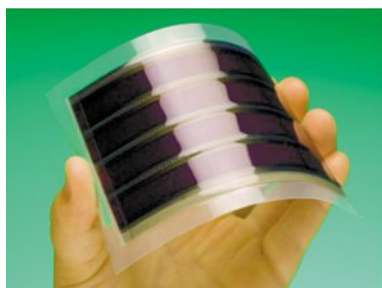


SWISS Science Concentrates

An Organic Sensitizer with a Fused Dithienothiophene Unit for Efficient and Stable Dye-Sensitized Solar Cells

H. Qin, S. Wenger, M. Xu, F. Gao, X. Jing, P. Wang,* S. M. Zakeeruddin,* and M. Grätzel* *J. Am. Chem. Soc.* **2008**, *130*, 9202
Chinese Academy of Sciences, Harbin Engineering University, and EPF Lausanne

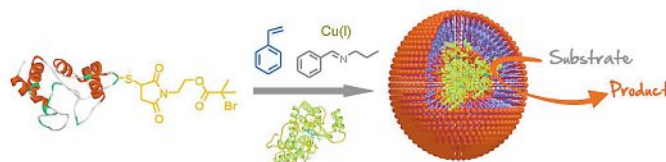
The sensitizer, as the light-harvesting component in a dye-sensitized solar cell (DSC), is of paramount importance to photovoltaic performance. Herein, the authors report a novel fused dithienothiophene sensitizer that allows, in combination with a solvent-free ionic liquid electrolyte, the constitution of a ~7% cell showing an excellent stability measured under the dual stresses of heat and light soaking. This is expected to have an important practical consequence on the production of flexible, low-cost, and lightweight DSCs based on plastic matrix.



In situ ATRP-Mediated Synthesis of Hierarchical Formation of Giant Amphiphile Bionanoreactors

B. Le Droumaguet and K. Velonia*, *Angew. Chem., Int. Ed.* **2008**, *47*, 6263
University of Geneva

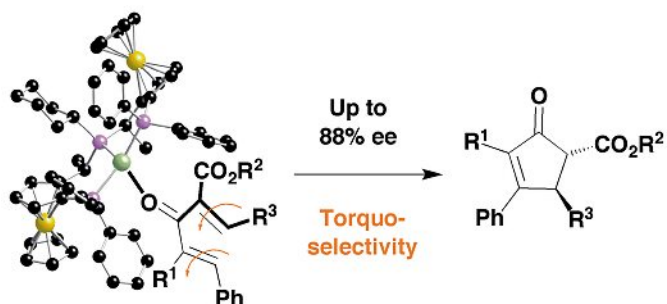
Giant amphiphiles, a subclass of protein-polymer conjugates that form interesting superstructures are, unfortunately, often hard to prepare by conventional means due to solubility limitations or constraints linked to the protein itself. In this article, it is shown that an efficient *in situ* preparation of protein-polystyrene giant amphiphiles can be accomplished through an atom-transfer-radical-mediated polymerization protocol. The resulting biohybrids display low polydispersities and the characteristic aggregation properties of amphiphilic biomacromolecules. A second, catalytically active guest protein can also be *in situ* included within the superstructures and retain its activity.



Ni(II)-Catalyzed Enantioselective Nazarov Cyclizations

I. Walz and A. Togni* *Chem. Commun.* **2008**, 4315
ETH Zürich

The Nazarov cyclization, *i.e.* the generation of cyclopentenones from divinyl ketones under strong acid activation, is one of the fastest methods for the synthesis of highly substituted five-membered rings. Despite recent progress, the genuine control of torquoselectivity of the cyclization step in truly catalytic Nazarov reactions remains very rare. In this article, the authors describe such a process in which Nazarov cyclizations are catalyzed by a dicationic Ni(II) complex containing the chiral tridentate phosphine Pigiphos. The reaction occurs with a high degree of torquoselectivity and affords the products in up to 88% *ee*.



Proton-Coupled Electron Transfer from a Luminescent Excited State

J. C. Freys, G. Bernardinelli, and O. S. Wenger* *Chem. Commun.* **2008**, 4267
University of Geneva

In this article, it is shown that an iridium complex with a 2,2'-biimidazole ligand forms hydrogen-bonded (1:1) adducts with benzoate anions. These salt-bridged ion pairs are useful model systems for proton-coupled electron transfer investigations that play a pivotal role in many biologically important processes. Photoexcitation of the ion pair triggers an electron-transfer and a proton delocalization that can be monitored directly by optical spectroscopy due to the close proximity of the acidic N-H protons to the metal center.

