

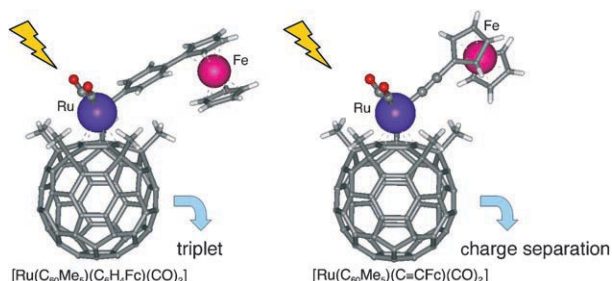
## Fullerenes

Y. Matsuo,\* K. Matsuo, T. Nanao,  
R. Marczak, S. S. Gayathri,  
D. M. Guldi,\* E. Nakamura\*

### A Ruthenium Bridge in Fullerene–Ferrocene Arrays: Synthesis of $[\text{Ru}(\text{C}_{60}\text{Me}_5)\text{R}(\text{CO})_2]$ ( $\text{R} = \text{C}_6\text{H}_4\text{Fc}$ , $\text{C} \equiv \text{Cfc}$ ) and Their Charge-Transfer Properties

*Chem. Asian J.*

DOI: 10.1002/asia.200700379



**Making the connection:** The new phenylene- and acetylene-bridged ferrocene–ruthenium–fullerene arrays shown convert into different states upon photoirradiation in toluene. The

organometallic connection thus provides a convenient and efficient way to control the physical behavior of donor/acceptor molecules. Fc = ferrocenyl.

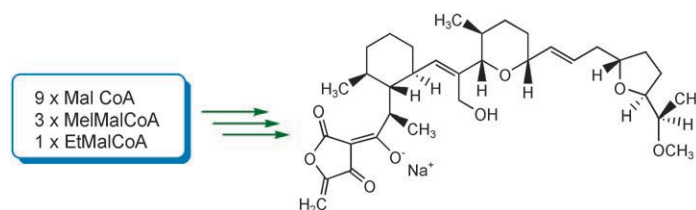
## Biosynthesis

Y. Demydchuk, Y. Sun, H. Hong,  
J. Staunton, J. B. Spencer,  
P. F. Leadlay\*

### Analysis of the Tetronomycin Gene Cluster: Insights into the Biosynthesis of a Polyether Tetronate Antibiotic

*ChemBioChem*

DOI: 10.1002/cbic.200700715



**Molecular origami.** Analysis of the biosynthetic gene cluster for the polyether tetronate antibiotic, tetronomycin, and the results of specific gene disruption have led to a detailed proposal for the multistep process in which a modu-

lar polyketide synthase produces a C-26 polyketide chain, which is then folded and cyclised with complete stereochemical fidelity to create the metal-binding cavity of the ionophore (see illustration).

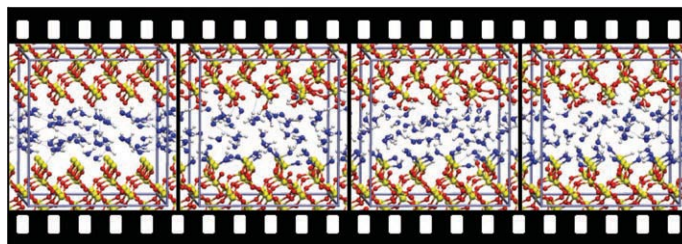
## Molecular Dynamics

W. A. Adeagbo, N. L. Doltsinis,\*  
K. Klevakina, J. Renner

### Transport Processes at $\alpha$ -Quartz–Water Interfaces: Insights from First-Principles Molecular Dynamics Simulations

*ChemPhysChem*

DOI: 10.1002/cphc.200700819



**Hydroxylation of quartz surfaces:** Car-Parrinello MD simulations, performed at high temperature and pressure, investigate processes at the  $\alpha$ -quartz–water interface (see snapshot series). The model system initially has O-ter-

minated and Si-terminated surfaces sandwiching a film of liquid water. Eventually, both surfaces are fully hydroxylated and no further chemical reactions are observed.

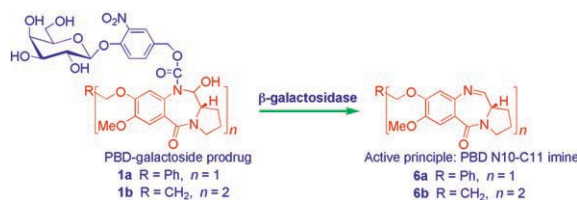
## Antitumor Prodrugs

A. Kamal,\* V. Tekumalla,  
A. Krishnan, M. Pal-Bhadra,  
U. Bhadra\*

### Development of Pyrrolo[2,1-c][1,4]-benzodiazepine $\beta$ -Galactoside Prodrugs for Selective Therapy of Cancer by ADEPT and PMT

*ChemMedChem*

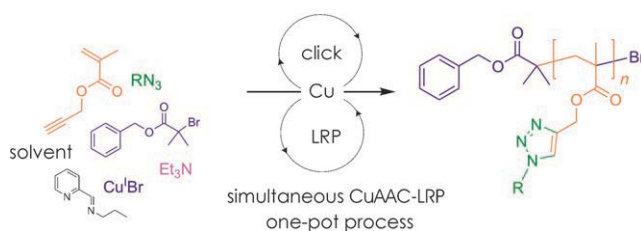
DOI: 10.1002/cmdc.200700328



**Selective and effective:** Two PBD-galactoside prodrugs **1a–b** have been synthesized and evaluated for use in selective therapy of cancer by ADEPT and

PMT protocols. The two prodrugs display antitumor activity closely resembling their parent moieties, when activated by the enzyme  $\beta$ -galactosidase.

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**All in one:** Cu<sup>I</sup>Br/iminopyridine systems can catalyze simultaneously both copper(I)-catalyzed azide-alkyne cycloaddition (CuAAC, “click”) and living radical polymerization (LRP) processes (see scheme). The relative rate of the two processes can be tail-

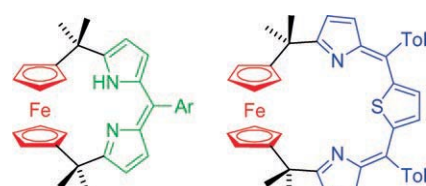
ored by a judicious choice of the reaction conditions (solvent, temperature, [Cu<sup>I</sup>Br]<sub>0</sub>) leading to the development of a potentially very efficient synthetic route to well-defined functional polymers.

## Living Polymerization

J. Geng, J. Lindqvist, G. Mantovani,\*  
D. M. Haddleton\*

### Simultaneous Copper(I)-Catalyzed Azide-Alkyne Cycloaddition (CuAAC) and Living Radical Polymerization

*Angew. Chem. Int. Ed.*  
DOI: 10.1002/anie.200800179



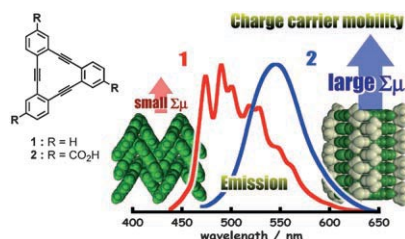
Ferrocene acts as a versatile building block for the construction of porphyrinoids, providing access to macrocyclic structures of various shapes and sized. The two representative systems, shown in the figure, adopt helical conformations that undergo dynamic inversion in solution.

## Porphyrin Analogues

M. Stępień, I. Simkova,  
L. Latos-Grażyński\*

### Helical Porphyrinoids: Incorporation of Ferrocene Subunits into Macrocyclic Structures

*Eur. J. Org. Chem.*  
DOI: 10.1002/ejoc.200800146



**Face up to it:** The face-to-face stacked 1D column composed of [12]DBA macrocycle was successfully achieved by using the carboxylic derivative **2** in a crystalline state. Compared with the herringbone assembly of the parent compound **1**, the crystal of **2** exhibits superstructure-dependent properties: a red-shifted, broadened, weakened fluorescence profile and significantly anisotropic charge mobility along the columnar axis.

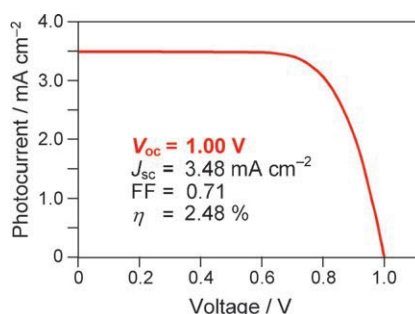
## Dehydroannulenes

I. Hisaki,\* Y. Sakamoto,  
H. Shigemitsu, N. Tohna,  
M. Miyata,\* S. Seki, A. Saeki,  
S. Tagawa

### Superstructure-Dependent Optical and Electrical Properties of an Unusual Face-to-Face, $\pi$ -Stacked, One-Dimensional Assembly of Dehydrobenzo[12]annulene in the Crystalline State

*Chem. Eur. J.*  
DOI: 10.1002/chem.200800228

**The big 1.0:** A dye-sensitized solar cell that combines Mg-containing TiO<sub>2</sub> electrodes and an organic photosensitizer 2-cyano-3-(4-*N,N*-diphenylaminophenyl)-*trans*-acrylic acid displays the highest open-circuit voltage reported so far ( $V_{oc}$  = 1.00 V). The electrodes have a negatively shifted conduction band, and the photosensitizer has a sufficiently negative LUMO energy level to inject the photoexcited electrons into the electrode efficiently.



## Dye-Sensitized Solar Cells

S. Iwamoto,\* Y. Sazanami, M. Inoue,  
T. Inoue, T. Hoshi, K. Shigaki,  
M. Kaneko, A. Maenosono

### Fabrication of Dye-Sensitized Solar Cells with an Open-Circuit Photovoltage of 1 V

*ChemSusChem*  
DOI: 10.1002/cssc.200700163