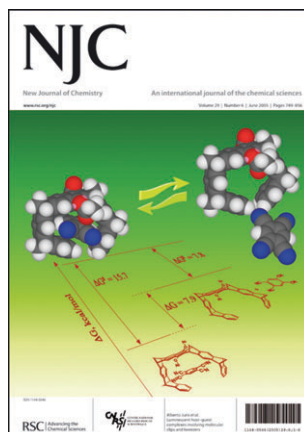


In this issue...

Letters from Janine Cossy, Pierre. H. Dixneuf, Hongbin Zhang, Baowen Zhang and Chun-Ying Duan



Cover

The front cover illustrates the formation and disassembly of a host-guest complex. A hydrocarbon, whose shape resembles a tweezer, acts as a host for tetracyanobenzene. There is a charge transfer interaction between the host and guest and luminescence of charge transfer origin is observed from the host-guest complex. The association constant and the association/dissociation barriers for complex formation have been determined by using spectroscopic and electrochemical techniques.

Image reproduced by permission of Filippo Marchioni, Alberto Juris, Matthias Lobert, Uta P. Seelbach, Björn Kahlert and Frank-Gerrit Klärner, *New J. Chem.*, 2005, **29**, 780.

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Chemical Science

June 2005/Volume 2/Issue 6

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OPINION

759



A common misconception about the Eyring equation

Gábor Lente,* István Fábián and Anthony J. Poë

Linearization and direct fitting to the Eyring equation both give the entropy of activation with the same reliability as that of the enthalpy of activation.

$$k = \frac{k_B T}{h} \exp\left(-\frac{\Delta G^\ddagger}{RT}\right) = \frac{k_B T}{h} \exp\left(-\frac{\Delta H^\ddagger}{RT} + \frac{\Delta S^\ddagger}{R}\right)$$

$$\sigma(\Delta S^\ddagger) = \frac{1}{T_{av}} \sigma(\Delta H^\ddagger)$$

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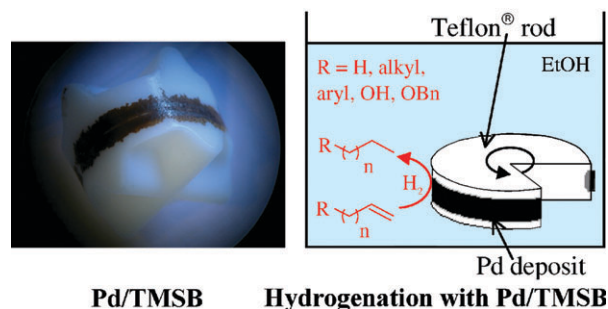
LETTERS

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Hydrogenation *versus* hydrogenolysis with a safe, selective and reusable catalyst: palladium black on Teflon[®]

Damien Belotti, Guillaume Cantagrel, Catherine Combellas, Janine Cossy,* Frédéric Kanoufi and Sandra Nunige

Palladium black deposit on the Teflon polymer surface of magnetic stirring bars, deposited by an electrochemical process, can be used to perform hydrogenation of olefins and acetylenic compounds whilst hydrogenolysis is not observed.

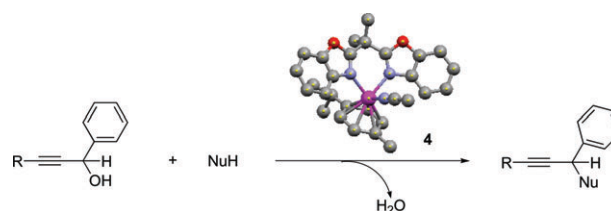


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Direct propargylation of furan and arene by propargylic alcohols promoted by bisoxazoline–ruthenium catalysts

Cédric Fischmeister, Loïc Toupet and Pierre. H. Dixneuf*

Synthesis and characterisation of a dicationic ruthenium–bisoxazoline complex which shows catalytic activity for the nucleophilic substitution of propargylic alcohols.

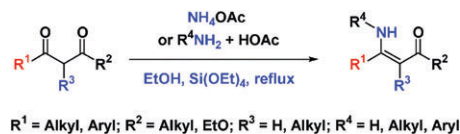


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Efficient synthesis of β -amino- α,β -unsaturated carbonyl compounds

Yuanhong Zhao, Jingfeng Zhao, Yongyun Zhou, Ze Lei, Liang Li and Hongbin Zhang*

An environmentally friendly and high-yielding procedure for the synthesis of β -enamino esters and β -enaminones is presented.

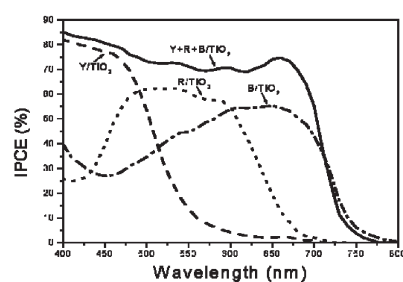


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Highly efficient co-sensitization of nanocrystalline TiO₂ electrodes with plural organic dyes

Yousheng Chen, Zhanghua Zeng, Chao Li, Weibo Wang, Xuesong Wang* and Baowen Zhang*

A nanocrystalline TiO₂ solar cell co-sensitized by three organic dyes exhibited an overall power conversion efficiency (η) of 6.5% (AM1.5, 80 mW cm⁻²), the highest η to date for dye-sensitized solar cells based on the co-sensitization of plural organic dyes.

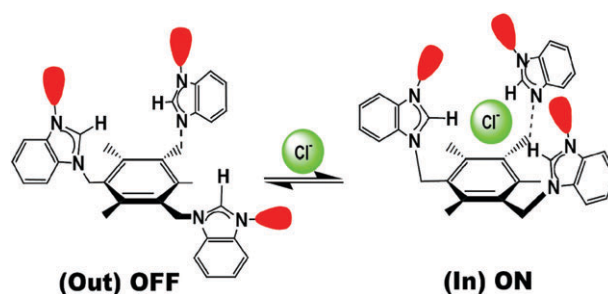


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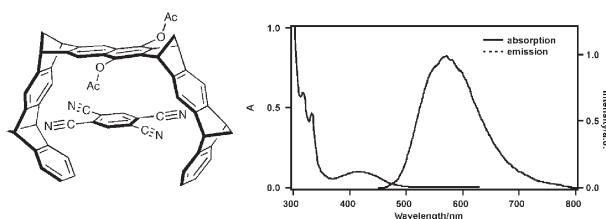
Conformational switching fluorescent chemosensor for chloride anion

Yan Bai, Bing-Guang Zhang, Jian Xu, Chun-Ying Duan,* Dong-Bin Dang, De-Jun Liu and Qing-Jin Meng*

A new sensor using a guest-induced conformational switching process was achieved by using a positively charged tripodal receptor with naphthyl groups attached to the benzoimidazolium arms.



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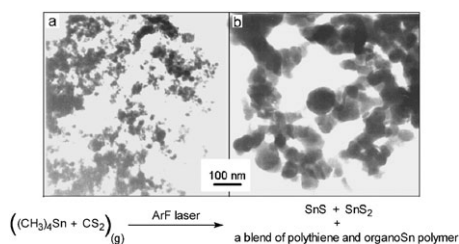


Luminescent host-guest complexes involving molecular clips and tweezers and tetracyanobenzene

Filippo Marchioni, Alberto Juris,* Matthias Lobert, Uta P. Seelbach, Björn Kahlert and Frank-Gerrit Klärner

Luminescence is observed for the first time from charge-transfer excited states in host-guest complexes. Photophysical and electrochemical investigations are used to measure the association constants and to investigate the association/dissociation dynamics.

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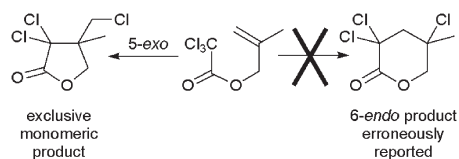


ArF laser photolysis of gaseous CS_2 – $(\text{CH}_3)_4\text{Sn}$ mixtures: gas-phase reaction between tin and sulfur and deposition of nanosized tin sulfides incorporated in a polymer network

Radmila Tomovska, Vladimír Vorlíček, Jaroslav Boháček, Jan Šubrt and Josef Pola*

Nanosized SnS and SnS₂ tin sulfides are produced by ArF laser photolysis of gaseous mixtures of carbon disulfide and tetramethyltin and are deposited in a blend of polythiène and organotin polymer.

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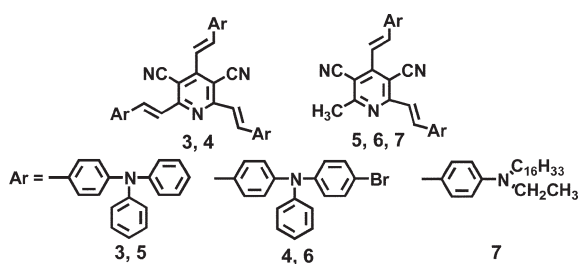


6-endo or not 6-endo, that is the question: correcting an erroneous structural assignment and mechanistic presumption

John Tamine* and Chenbo Wang

CuCl promoted radical cyclization of methallyl trichloroacetate yields the 5-*exo* product, along with the twelve-membered cyclic dimer, which had previously been mis-identified as the 6-*endo* cyclization product.

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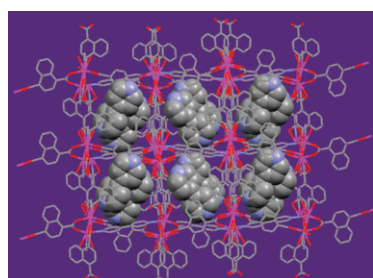


Synthesis and properties of new two-photon absorption chromophores containing 3,5-dicyano-2,4,6-tristyrylpyridine as the core

Hongli Wang, Zhen Li, Pin Shao, Yanke Liang, Hui Wang, Jingui Qin* and Qihuang Gong

New two- and three-branched chromophores based on 3,5-dicyano-2,4,6-tristyrylpyridine show efficient two-photon-induced orange-red fluorescence emission.

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Second ligand-directed self-assembly of lanthanide(III) coordination polymers with 1,4-naphthalenedicarboxylate

Xiang-Jun Zheng, Lin-Pei Jin,* Song Gao and Shao-Zhe Lu

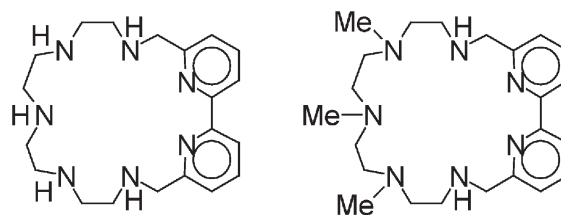
The addition of a second ligand, 4,4'-bipyridine, directs the self-assembly of two lanthanide coordination polymers with 1,4-naphthalenedicarboxylate, leading to an unprecedented 3D structure having large pores in which 4,4'-bipyridine is enclathrated.

805

**Co(II) and Cd(II) complexation with two dipyridine-containing macrocyclic polyamines in water and dimethyl sulfoxide**

Carla Bazzicalupi, Andrea Bencini, Antonio Bianchi,* Silvia Del Piero, Patrizia Fornasari, Claudia Giorgi, Andrea Melchior, Roberto Portanova, Marilena Tolazzi* and Barbara Valtancoli

The different solvation properties of macrocyclic polyamines brought about by *N*-methylation lead to quite different ligand coordination properties in solution.

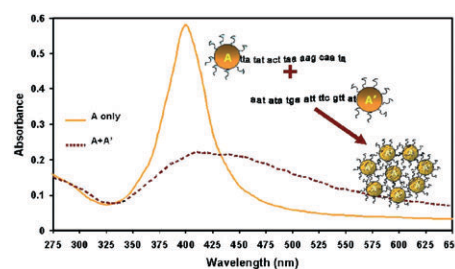


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Stability and hybridization-driven aggregation of silver nanoparticle–oligonucleotide conjugates

Bernardo C. Vidal Jr.,* Theivanayagam C. Deivaraj, Jun Yang, Heng-Phon Too, Gan-Moog Chow, Leong M. Gan and Jim Y. Lee

Reversible hybridization of complementary DNA strands conjugated to Ag nanoparticles produces a plasmon band signature characteristic of Ag nanoparticle aggregation.

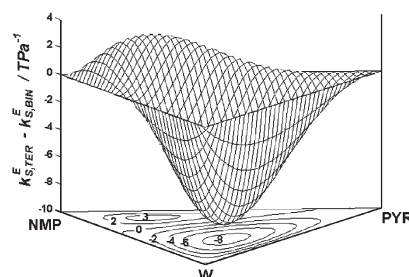


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**Solute–solvent interactions in lactams–water ternary solvents**

Rafael Alcalde, Santiago Aparicio, Begoña García, María J. Dávila and José M. Leal*

The strong non-ideal behaviour of lactams–water ternary mixtures, revealed by the excess and mixing properties, is attributed to H-bonding heteroassociations and is analyzed at the microscopic level.

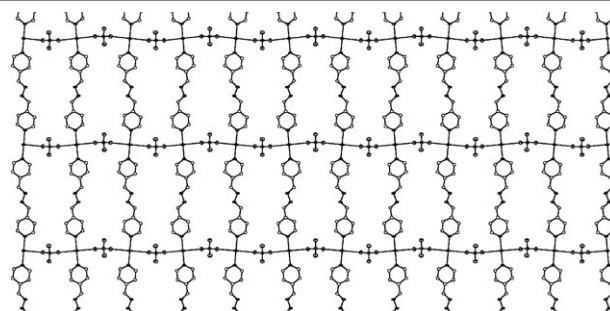


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**Chromophore containing bipyridyl ligands. Part 1: supramolecular solid-state structure of Ag(I) complexes**

Alan R. Kennedy,* Karen G. Brown, Duncan Graham, Jennifer B. Kirkhouse, Madeleine Kittner, Claire Major, Callum J. McHugh, Paul Murdoch and W. Ewen Smith

The structures of a series of Ag(I) complexes with azine or azo based bipyridyl ligands have been determined. One-dimensional chains dominate these structures, but the three-dimensional packing of the chains is unpredictable.



833

**Structural, spectroscopic and computational studies of the HgL₂Cl₂ complex (L = 3,5-dimethyl-1-thiocarboxamide pyrazole) and the crystal structure of L**

Attila Kovács,* Dénes Nemcsok, György Pokol, Katalin Mészáros Szécsényi,* Vukadin M. Leovac, Željko K. Jaćimović, Ivana Radosavljević Evans, Judith A. K. Howard, Zoran D. Tomić and Gerald Giester

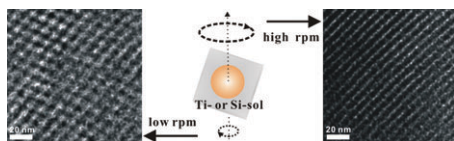
Electronic and steric effects determine the Hg coordination to the ligand through the sulfur atoms instead of the nitrogens in the title HgL₂Cl₂ complex.



Selective control of cubic and hexagonal mesophases for titania and silica thin films with spin-coating

Jia Hong Pan and Wan In Lee*

Highly ordered cubic and hexagonal mesoporous TiO_2 and SiO_2 thin films can be selectively obtained by varying the spin-coating conditions in the evaporation-induced self-assembly process.



Selective assembly of specifically charged proteins on an electrochemically switched surface

Li Mu, Ying Liu, Song Zhang, Baohong Liu and Jilie Kong*

A low-density self-assembled monolayer surface can be used for the selective assembly of charged proteins by switching the applied electrical potential.

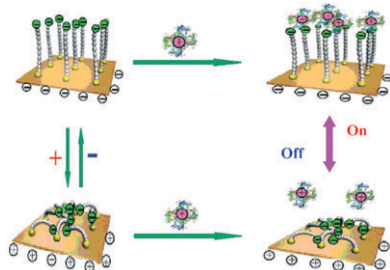


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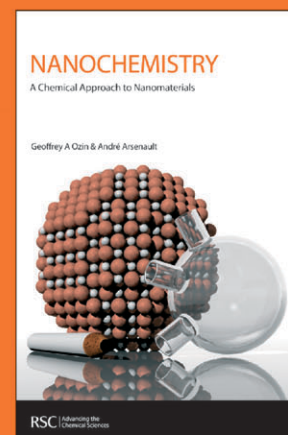
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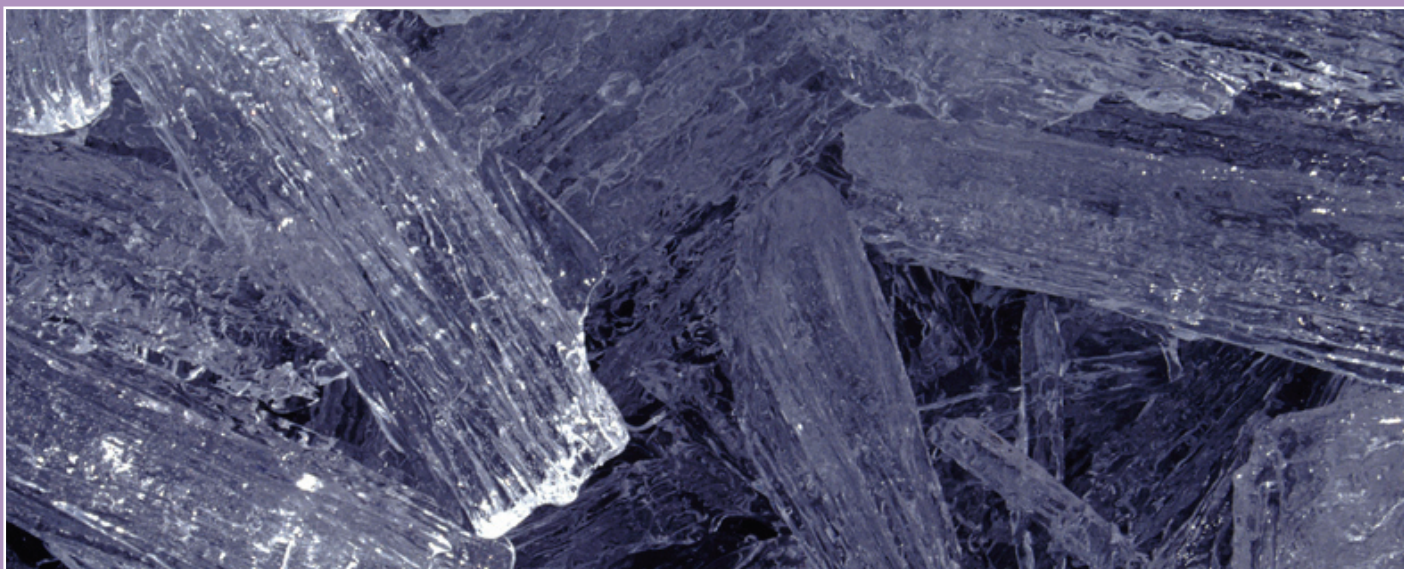
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