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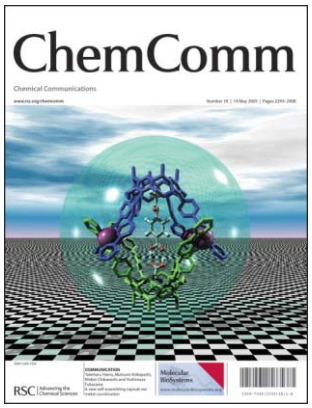
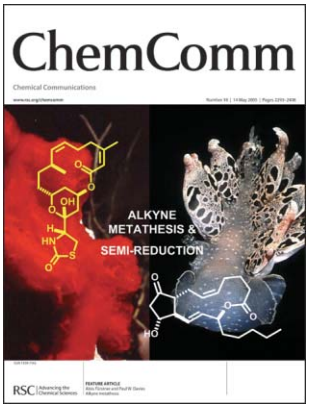
ISSN 1359-7345 CODEN CHCOFS (18) 2293–2408 (2005)

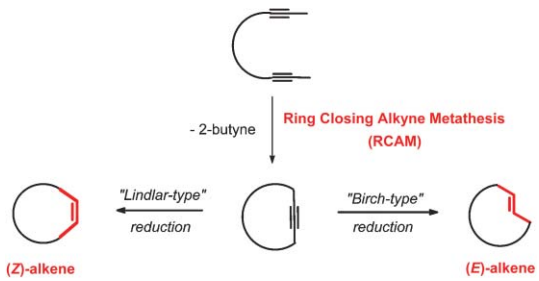


Cover
See Takeharu Haino *et al.*, page 2321. New self-assembling capsule *via* metal-coordination with a well-defined inner cavity of volume about 580 Å. This discrete guest-binding environment provides unusual complexation of guest molecules as individuals and as pairs. Image reproduced by permission of Takeharu Haino, Mutsumi Kobayashi, Midori Chikaraishi and Yoshimasa Fukazawa from *Chem. Commun.*, 2005, 2321.



Inside cover
See Alois Fürstner and Paul W. Davies, page 2307. Two bioactive marine natural products which were successfully prepared by alkyne metathesis as one of the key steps, together with the producing organisms. Image reproduced by permission of Alois Fürstner and Paul W. Davies from *Chem. Commun.*, 2005, 2307.

FEATURE ARTICLE



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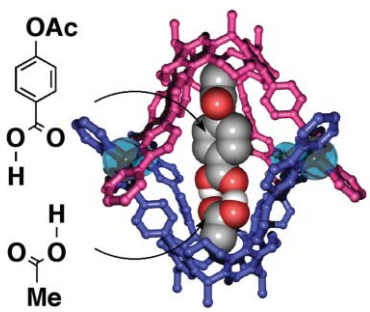

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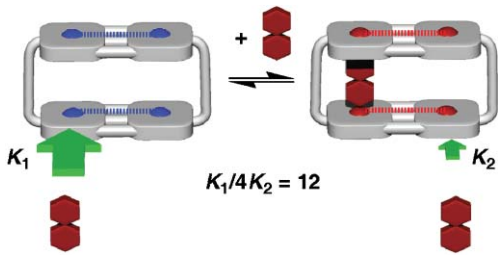
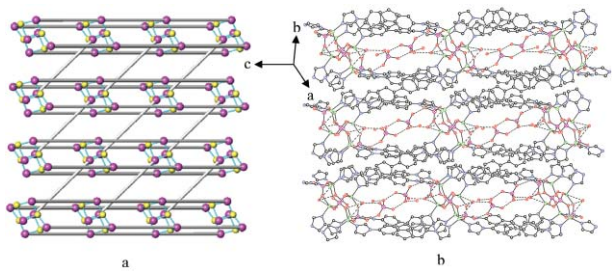
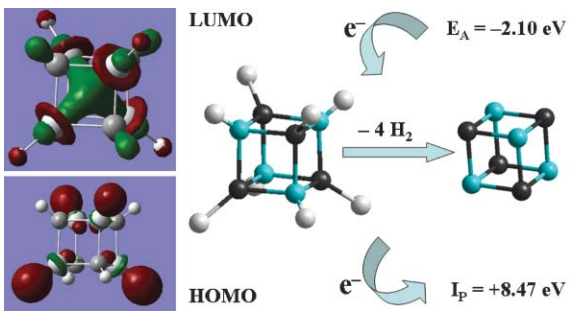
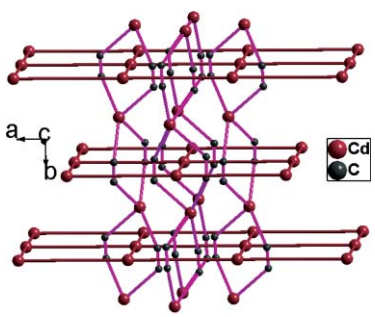






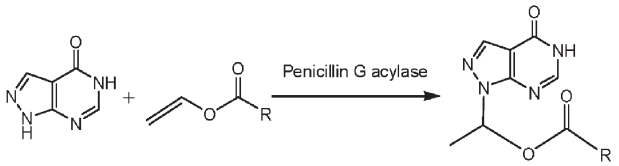


2348

Penicillin G acylase catalyzed Markovnikov addition of allopurinol to vinyl ester

Wei-Bo Wu, Na Wang, Jian-Ming Xu, Qi Wu and Xian-Fu Lin*

A new enzymatic process is reported, in which penicillin G acylase from *Escherichia coli* displays a promiscuous activity in catalyzing the Markovnikov addition of allopurinol to vinyl ester.

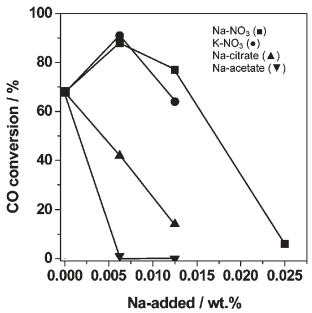


2351

Unexpected promotion of Au/TiO_2 by nitrate for CO oxidation

Benjamin Solsona, Marco Conte, Yu Cong, Albert Carley and Graham Hutchings*

The catalytic activity for Au/TiO_2 for CO oxidation can be significantly enhanced by the addition of nitrates and this may relate to the variable catalyst performance observed in many studies.

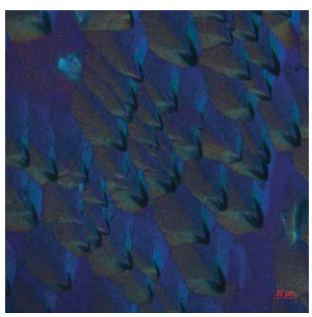


2354

Phosphonate mediated surface reaction and reorganization: implications for the mechanism controlling cement hydration inhibition

Corina Lupu, Rolf S. Arvidson, Andreas Lüttge* and Andrew R. Barron*

Vertical scanning interferometry provides an alternative mechanism for the length of time that a phosphonate hydration inhibitor will show efficacy: the rate of surface reorganization/restriction.



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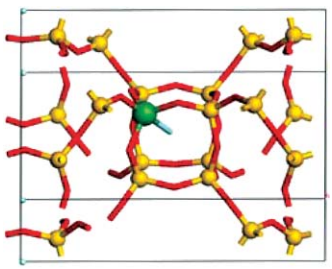
Pentacoordinated germanium in AST zeolite synthesised in fluoride media. A ^{19}F NMR validated computational study

German Sastre,* Angeles Pulido and Avelino Corma

A computational study shows pentacoordinated Ge in the double four rings (D4R) of Si/Ge AST zeolites. The calculated chemical shifts of F-D4R containing 8Si, 7Si1Ge and 8Ge reproduce the trends of experimental ^{19}F NMR results.



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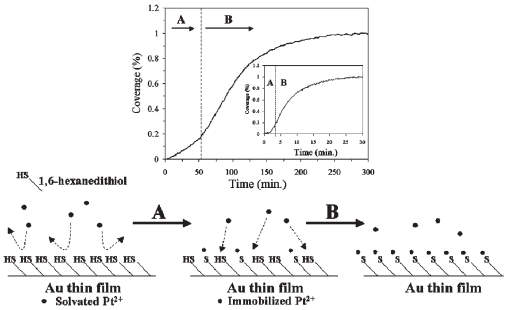
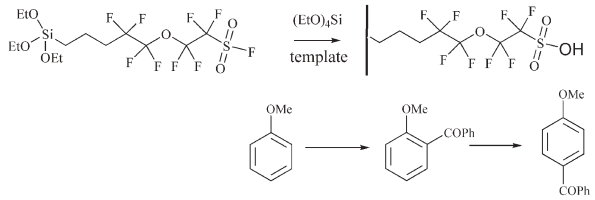


Direct observation of a cooperative mechanism in the adsorption of heavy metal ions to thiolated surface by *in-situ* surface plasmon resonance measurements

Taewook Kang, Jungwoo Moon, Seogil Oh, Surin Hong, Soonwoo Chah and Jongheop Yi*

S-type adsorption kinetics, obtained by surface plasmon resonance measurements, suggest that the rate of Pt^{2+} adsorption on 1,6-hexanedithiol (HDT) on Au increases until the surface coverage reaches *ca.* 17% (A), after which, the adsorption profile of Pt^{2+} follows Langmuirian behavior (B).

2363

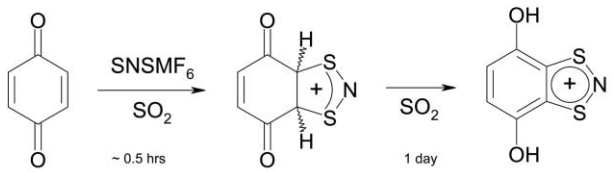


Novel mesoporous silica–perfluorosulfonic acid hybrids as strong heterogeneous Brønsted catalysts

Duncan J. Macquarrie,* Stewart J. Tavener and Mark A. Harmer

The sulfonic acid–mesoporous silica catalyst catalyses the acylation of anisole and the subsequent isomerisation of the *ortho* product very efficiently.

2366

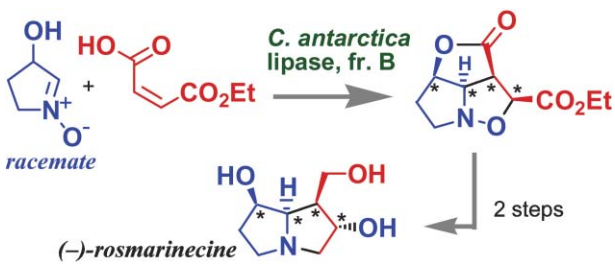


Evolution of the pseudo-1,3-dipolar cycloaddition chemistry of $SNSMF_6$ (M = As, Sb) leading to 2,5-dihydroxybenzo-1,3,2-dithiazolylium and 2,7-dicarbonylnaphtha-1,3,2-dithiazolylium salts and their corresponding radicals

Andreas Decken, Aaron Mailman, Saba M. Mattar and Jack Passmore*

An unprecedented one-step synthesis of ring-fused 1,3,2-dithiazolylium salts and their corresponding 7π radicals provides a versatile template for designing a new class of radicals.

2369



Lipase-catalyzed domino kinetic resolution of α-hydroxynitrones/intramolecular 1,3-dipolar cycloaddition: a concise asymmetric total synthesis of (−)-rosmarinecine

Shuji Akai, Kouichi Tanimoto, Yukiko Kanao, Sohei Omura and Yasuyuki Kita*

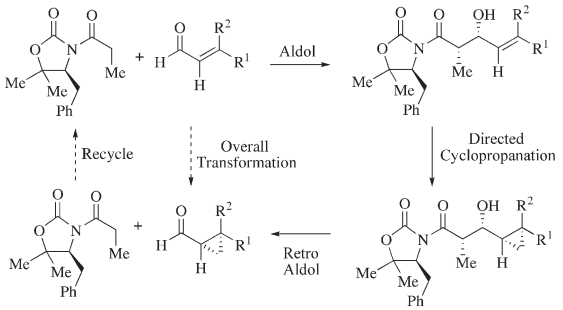
The title domino reactions were developed to directly provide tetrahydrofuro[3,4-*c*]isoxazole derivatives in ⩾90% ee from racemic α-hydroxynitrones, which were used in the concise asymmetric total synthesis of (−)-rosmarinecine.

2372

A novel strategy for the asymmetric synthesis of chiral cyclopropane carboxaldehydes

Matt Cheeseman, Fred J. P. Feuillet, Andrew L. Johnson and Steven D. Bull*

A new strategy for combining chiral auxiliaries and substrate-directable reactions for asymmetric synthesis is described for a novel three-step protocol that employs a sequence of aldol–cyclopropanation–*retro*-aldol reactions for the stereoselective synthesis of enantiopure cyclopropane carboxaldehydes.

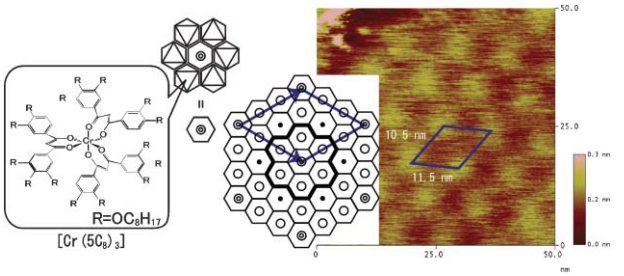


2375

Nanometer-scale ordering in cast films of columnar metallomesogen as revealed by STM observations

Norishige Kakegawa,* Naomi Hoshino, Yuki Matsuoka, Noboru Wakabayashi, Shin-ichiro Nishimura and Akihiko Yamagishi

STM observations were performed on a cast film of a columnar metallomesogen ([Cr($5C_8$)$_3$]) on a graphite surface, revealing the nanometer-scale surface ordering into an oblique lattice possibly due to the ΔΛ-chiral interaction(s).

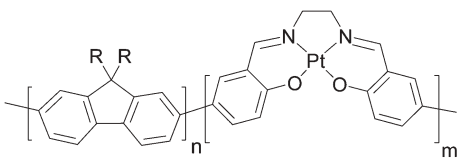


2378

Semiconducting polyfluorenes with electrophosphorescent on-chain platinum–salen chromophores

Frank Galbrecht, Xiao Hui Yang, Benjamin S. Nehls, Dieter Neher, Tony Farrell and Ullrich Scherf*

The synthesis of statistical fluorene-type copolymers with on-chain Pt–salen phosphorescent units and their use in electrophosphorescent OLEDs is reported.



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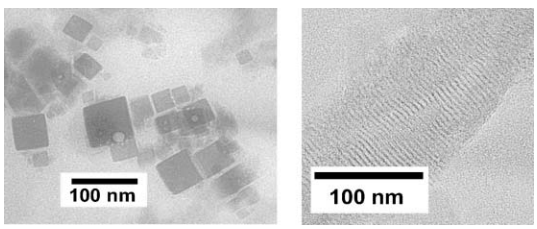
Formation of GeO_2 nanosheets using water thin layers in lamellar phase as a confined reaction field—*in situ* measurement of SAXS by synchrotron radiation

Motonari Adachi,* Keizo Nakagawa, Kensuke Sago, Yusuke Murata and Yukihiro Nishikawa

Crystallized layered GeO_2 nanosheets were synthesized using a lamellar phase containing surfactant molecules at room temperature.



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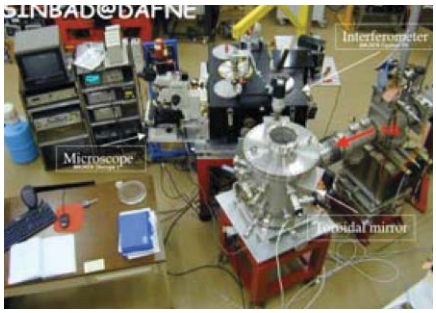
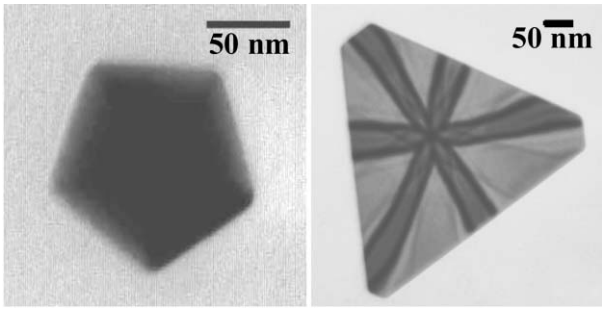


Kinetics of polycondensation reactions during self-assembly of mesostructured films studied by *in situ* infrared spectroscopy

Plinio Innocenzi,* Luca Malfatti, Tongjit Kidchob, Paolo Falcaro, Mariangela Cestelli Guidi, Massimo Piccinini and Augusto Marcelli

In situ synchrotron FTIR experiments have been performed during evaporation-induced self-assembly (EISA) of mesoporous films and the role of silica polycondensation in obtaining highly organized mesostructures has been illuminated.

2387



Polygonal gold nanoplates in a polymer matrix

S. Porel, S. Singh and T. P. Radhakrishnan*

Gold nanoplates are generated *in situ* in poly(vinyl alcohol) film, without any additional reducing agent, through mild thermal treatment. Polygonal geometries – pentagons, hexagons, triangles and squares/rectangles – are obtained depending on the composition and thermal treatment conditions.

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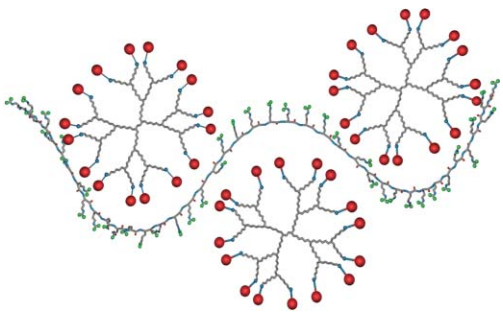
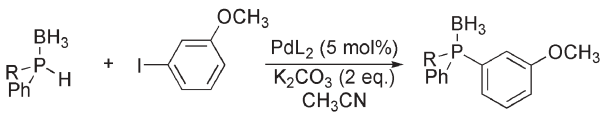


Dendrimeric Gd(III) complex of a monophosphinated DOTA analogue: optimizing relaxivity by reducing internal motion†

Jakub Rudovský, Petr Hermann,* Mauro Botta, Silvio Aime* and Ivan Lukeš

A full-loaded G2-PAMAM conjugate with Gd(III) complexes showed remarkable enhancement of relaxivity upon addition of cationic polyaminoacids. This is ascribed to a "glue" effect arising from the interactions of the anionic complex moieties with the positively charged aminoacidic sidechains reducing the local internal mobility of the complexes.

2393



1 R = *t*-Bu
2 R = *o*-An

3 R = *t*-Bu
4 R = *o*-An

Palladium catalysed enantioselective phosphination reactions using secondary phosphine-boranes and aryl iodide

Stéphanie Pican and Annie-Claude Gaumont*

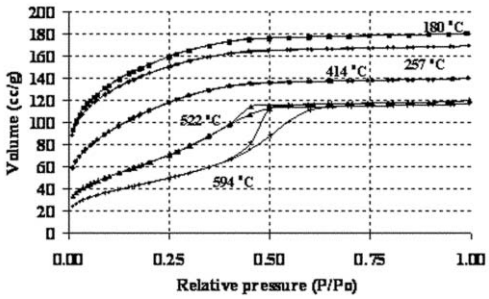
Enantioselective palladium-catalysed phosphination of an aryl iodide using an unhindered racemic secondary phosphine-borane gave P-stereogenic phosphine derivatives. The influence of the phosphorus substituent is crucial for the ee.

2396

New families of supermicroporous metal oxides: the link between zeolites and mesoporous materials

Boris G. Shpeizer, Abraham Clearfield* and Joy M. Heising

Sol–gel hydrolysis reactions in propanol of two or more metal acetates or alkoxides in *n*-alkylamines have been found to yield porous mixed oxides with the presence of pores largely in the 10–20 Å region.



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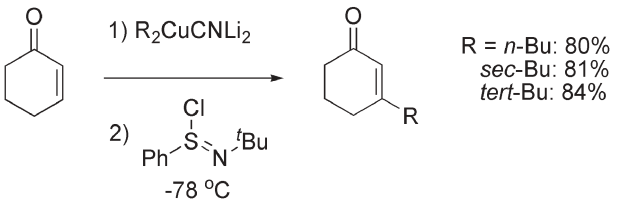
One-pot β-substitution of enones with alkyl groups to β-alkyl enones

Jun-ichi Matsuo* and Yayoi Aizawa

One-pot β-substitution of enones with alkyl groups proceeded efficiently under mild conditions using $R_2CuCNLi_2$ and PhS(Cl)=N^{t}Bu.

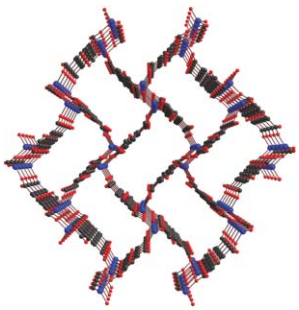


2402

A three-dimensional porous metal–organic framework with the rutile topology constructed from triangular and distorted octahedral building blocks

Linhua Xie, Shuxia Liu,* Bo Gao, Chundan Zhang, Chunyan Sun, Dehui Li and Zhongmin Su

The solvothermal reaction of zinc acetate dihydrate with 1,3,5-benzenetricarboxylic acid yields a three-dimensional porous metal–organic framework constructed from triangular and distorted octahedral building blocks, the framework of which can be described as a decorated rutile net.

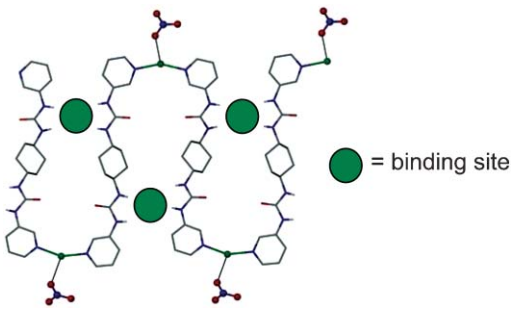


2405

Influence of hydrogen bonding on coordination polymer assembly

Lucas Applegarth, Andres E. Goeta and Jonathan W. Steed*

The conformation of an Ag(I) coordination polymer is controlled by peripheral hydrogen bonding to anions and neutral molecules to give either a sandwich structure (DMSO guest) or an open chain (nitrate guest).



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