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IN THIS ISSUE

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Cover

2007, 1987.

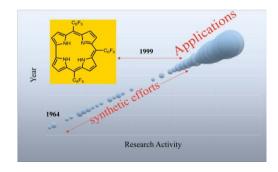
See Iris Aviv and Zeev Gross, page 1987. The cover depicts the developments in corrole chemistry: from 1964 (first reported derivative) and 1971 (first X-ray structure) through 1999 (first one-pot synthesis) to recent applications in medicine, solar cells, catalysis and more. Image reproduced by permission of Iris Aviv and Zeev Gross, from Chem. Commun.,

FEATURE ARTICLES

1987

Corrole-based applications

Iris Aviv and Zeev Gross*

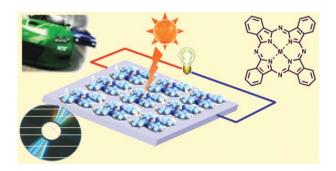


2000

Phthalocyanines: old dyes, new materials. Putting color in nanotechnology

Gema de la Torre, Christian G. Claessens and Tomás Torres*

Since their discovery in the 1930s, phthalocyanines have experienced a renaissance and they are, nowadays, essential components in many technological applications.



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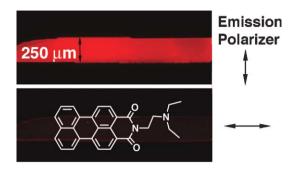
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2016

Anisotropic fluorescent materials via self-organization of pervlenedicarboximide

Liming Huang, Vincent J. Catalano and Suk-Wah Tam-Chang*

We report the self-organization of a perylenedicarboximide to produce materials that exhibit dichroic (direction-dependent) absorption and anisotropic fluorescence emission of visible light.



2019

Lewis vs. Brønsted-basicities of diiron dithiolates: spectroscopic detection of the "rotated structure" and remarkable effects of ethane- vs. propanedithiolate

Aaron K. Justice,* Giuseppe Zampella, Luca De Gioia* and Thomas B. Rauchfuss'

The new complexes $Fe_2(S_2C_nH_{2n})(CO)_2(dppv)_2$ (n=2,3; $dppv=cis-1,2-C_2H_2(PPh_2)_2$) form adducts with $AlBr_3$ and $B(C_6F_5)_3$, which adopt the "rotated structure" proposed for the active site of the Fe-only hydrogenases—the propanedithiolate is significantly more basic due to nonbonded interactions between the dithiolate strap and the ligands on the Fe.

LA = B(C₆F₅)₃, AlBr₃

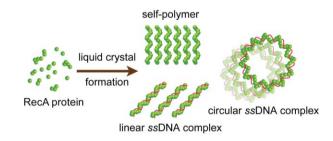
$$v_{CO} = 1960, 1640 \text{ cm}^{-1}$$

2022

Liquid crystal formation of RecA-DNA filamentous complexes

Kento Okoshi,* Taro Nishinaka,* Yuko Doi, Reiko Hara, Makiko Hashimoto and Eiji Yashima*

Spontaneous optical birefringence of RecA-bound linear and closed circular single-stranded DNA filaments, as well as RecA self-assembled polymer, was observed in aqueous buffer solutions, which demonstrates the formation of lyotropic liquid crystalline phases.



2025

Sensor technologies based on a cellulose supported platform

Jane Holly Poplin, Richard P. Swatloski, John D. Holbrey, Scott K. Spear, Andreas Metlen, Michael Grätzel, Mohammad K. Nazeeruddin and Robin D. Rogers*

A simple approach to sensor development based on encapsulating a probe molecule in a cellulose support followed by regeneration from an ionic liquid solution is demonstrated here with 1-(2-pyridylazo)-2-naphthol as a probe molecule for the colorimetric detection of Hg(II).







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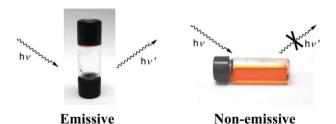
COMMUNICATIONS

2028

Luminescent metallogels of platinum(II) terpyridyl complexes: interplay of metal···metal, π – π and hydrophobic-hydrophobic interactions on gel formation

Anthony Yiu-Yan Tam, Keith Man-Chung Wong, Guoxin Wang and Vivian Wing-Wah Yam*

A series of platinum(II) terpyridyl complexes has been demonstrated to show gelation properties driven by Pt···Pt and π - π interactions in addition to hydrophobic-hydrophobic interactions; counter-anions have been found to affect strongly the colour of the metallogel.

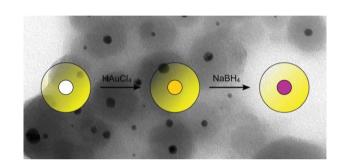


2031

Au-silica nanoparticles by "reverse" synthesis of cores in hollow silica shells

Sara Cavaliere-Jaricot,* Masih Darbandi and Thomas Nann*

Core-shell materials are typically prepared from the core to the shell(s). Conversely, this paper describes a method where the shell is prepared first and subsequently used as a template for the preparation of the core.

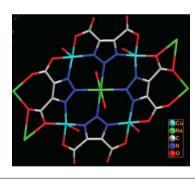


2034

A novel three-dimensional heterometallic compound: templated assembly of the unprecedented planar "Na⊂[Cu₄]" metalloporphyrin-like subunits

Yan-Feng Yue, Bing-Wu Wang, En-Qing Gao, Chen-Jie Fang, Cheng He and Chun-Hua Yan*

A 3D heterometallic $[Cu_4Na_4(TzDC)_4(H_2O)_7]_n$ $(H_3TzDC =$ 1,2,3-triazole-4,5-dicarboxylic acid), which contains unprecedented planar "Na⊂[Cu₄]" metalloporphyrin-like subunits, was synthesized *via in situ* formation of the ligand and templated assembly of the "Na \subset [Cu₄]' subunits.

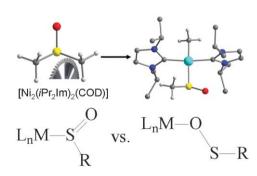


2037

Unusual nickel-mediated C-S cleavage of alkyl and aryl sulfoxides

Thomas Schaub, Marc Backes and Udo Radius*

Dmso as a coordinating solvent? Not for $[Ni_2(iPr_2Im)_4(COD)]$ 1, which cleanly cleaves sp²- and sp³-carbon sulfur bonds of dmso (Me-S(O)-Me), pmso (Ph-S(O)-Me) and dpso (Ph-S(O)-Ph) to afford $[Ni(iPr_2Im)_2(Me)(SOMe)]$ 2, $[Ni(iPr_2Im)_2(Ph)(SOMe)]$ 3, and $[Ni(iPr_2Im)_2(Ph)(OSPh)]$ 4.





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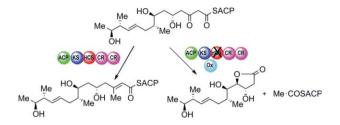
100000

2040

Mupirocin H, a novel metabolite resulting from mutation of the HMG-CoA synthase analogue, mupH in Pseudomonas fluorescens

Ji'en Wu, Sian M. Cooper, Russell J. Cox, John Crosby, Matthew P. Crump, Joanne Hothersall, Thomas J. Simpson,* Christopher M. Thomas and Christine L. Willis

Mutation of the HMG-CoA synthase encoding mupH gene in Pseudomonas fluorescens gives rise to a new metabolite formed from a truncated polyketide intermediate, providing in vivo evidence for the roles of mupH and cognate genes found in several bacterial PKS gene clusters.

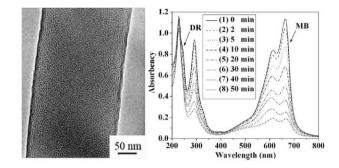


2043

Mesoporous TiO₂/SiO₂ composite nanofibers with selective photocatalytic properties

Sihui Zhan, Dairong Chen,* Xiuling Jiao* and Yang Song

Mesoporous TiO₂/SiO₂ composite nanofibers with silica shell thickness of 5–50 nm, which exhibited selective photocatalytic activity, have been fabricated by a sol-gel combined two-capillary co-electrospinning method.



2046

Unusual regioselective mercuration of metalloporphyrins and its potential applications

Ken-ichi Sugiura,* Aiko Kato, Kentaro Iwasaki, Hitoshi Miyasaka, Masahiro Yamashita, Shojun Hino and Dennis P. Arnold*

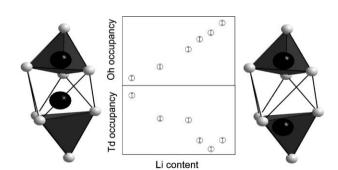
The reaction of Hg(CF₃CO₂)₂ with metalloporphyrins produces mercurated porphyrins substituted regioselectively in the most hindered β^B -positions, which is in marked contrast to the meso-selectivity typical of electrophilic substitution reactions of porphyrins.

2048

Lithium dimer formation in the Li-conducting garnets $Li_{5+x}Ba_xLa_{3-x}Ta_2O_{12}$ (0 < $x \le 1.6$)

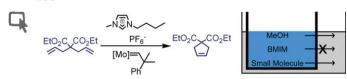
Michael P. O'Callaghan and Edmund J. Cussen*

The garnet system $\text{Li}_{5+x}\text{Ba}_x\text{La}_{3-x}\text{Ta}_2\text{O}_{12}$ shows an unprecedented Li^+ content ($x \le 1.6$) and short Li–Li distances of ca. 2.44 Å between majority occupied sites suggesting that the high Li⁺ mobility requires a complex cooperative mechanism.



COMMUNICATIONS

2051

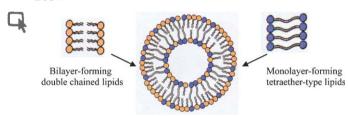


Room temperature ionic liquids: new solvents for Schrock's catalyst and removal using polydimethylsiloxane membranes

A. Lee Miller II and Ned B. Bowden*

A room temperature ionic liquid was used as the solvent for metathesis reactions with the Schrock catalyst. A new method to facilitate separation between small molecules and ionic liquids using polydimethylsiloxane thimbles is reported.

2054

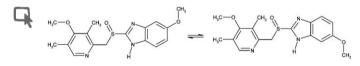


Archaeosomes based on synthetic tetraether-like lipids as novel versatile gene delivery systems

G. Réthoré, T. Montier, T. Le Gall, P. Delépine, S. Cammas-Marion, L. Lemiègre, P. Lehn and T. Benvegnu*

Novel cationic liposomes, termed "archaeosomes", based on mixtures of neutral/cationic bilayer-forming lipids and archaeobacterial synthetic tetraether-type bipolar lipids show efficient *in vitro* gene transfection properties and represent a new approach for modulating the lipidic membrane fluidity of the complexes they form with DNA.

2057

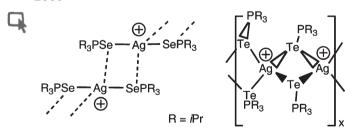


Tautomeric polymorphism in omeprazole

Prashant M. Bhatt and Gautam R. Desiraju*

The drug omeprazole exists in a continuous compositional range of solid solutions of two tautomers. How many polymorphs of omeprazole exist, one, two or infinite?

2060



The first trialkylphosphane telluride complexes of Ag(I): molecular, ionic and supramolecular structural alternatives

Constantin Daniliuc, Christian Druckenbrodt, Cristian G. Hrib, Frank Ruthe, Armand Blaschette, Peter G. Jones and Wolf-W. du Mont*

As a bridging ligand toward Ag(I), iPr_3PTe is superior to iPr_3PE (E = S, Se). In contrast to weak $Ag\cdots E$ contacts between linear cations in solid $[(iPr_3PE)_2Ag]SbF_6$ complexes, $[(iPr_3PTe)_2Ag]SbF_6$ contains a spirocyclic array of centrosymmetric four-membered Ag_2Te_2 rings.

COMMUNICATIONS

2063

Non-heme iron(II) complexes are efficient olefin aziridination catalysts

Katie L. Klotz, Luke M. Slominski, Anthony V. Hull, Victoria M. Gottsacker, Rubén Mas-Ballesté, Lawrence Que, Jr. and Jason A. Halfen*

Non-heme iron(II) complexes, such as complex 1, mediate the rapid aziridination of olefins by PhINTs in moderate to good vields.

2066

Grignard reagents in ionic solvents: electron transfer reactions and evidence for facile Br-Mg exchange

Taramatee Ramnial, Stephanie A. Taylor, Jason A. C. Clyburne and Charles J. Walsby

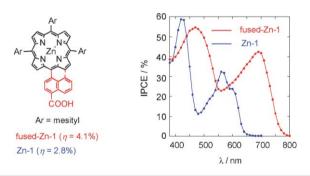
Grignard reagents form persistent solutions in phosphonium ionic liquids possessing O-donor anions and these solutions are excellent reaction media for electron transfer processes and transmetallation reactions.

2069

Novel unsymmetrically π -elongated porphyrin for dye-sensitized TiO2 cells

Masanobu Tanaka, Shinya Hayashi, Seunghun Eu, Tomokazu Umeyama, Yoshihiro Matano and Hiroshi Imahori*

An aromatic ring-fused porphyrin (fused-Zn-1)-sensitized TiO₂ cell exhibited a power conversion efficiency of 4.1%, which was improved by 50% relative to the unfused porphyrin (**Zn-1**) reference cell.

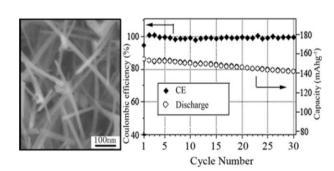


2072

Facile preparation and electrochemical properties of cubic-phase Li₄Mn₅O₁₂ nanowires

Yang Tian, Dairong Chen,* Xiuling Jiao* and Yongzheng Duan

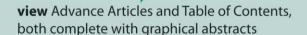
Single crystalline Li₄Mn₅O₁₂ nanowires with cubic phase were prepared by a simple molten salt route, which exhibited high storage capacity and coulombic efficiency as cathode materials for lithium-ion batteries.



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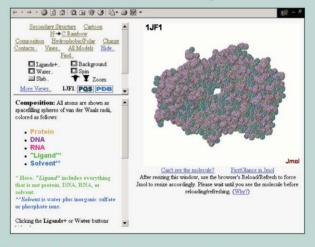


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2075

Halogen-magnesium exchange on unprotected aromatic and heteroaromatic carboxylic acids

Felix Kopp, Stefan Wunderlich and Paul Knochel*

The formation of Grignard reagents derived from aromatic halides bearing free carboxylic acids is accomplished by the reaction of various iodobenzoic acids with MeMgCl in the presence of LiCl, followed by the addition of *i*-PrMgCl·LiCl. The resulting reagents react with various electrophiles in good yields.

2078

Promiscuous zinc-dependent acvlase-mediated carbon-carbon bond formation in organic media

Jian-Ming Xu, Fu Zhang, Bo-Kai Liu, Qi Wu and Xian-Fu Lin*

A zinc-dependent acylase, D-aminoacylase from Escherichia. coli, displays a promiscuous activity to catalyze the carboncarbon bond formation reaction of 1,3-dicarbonyl compounds to methyl vinyl ketone in organic media.

$$R_1$$
 R_2
 R_2
 R_3
 R_4
 R_5
 R_4
 R_5
 R_5

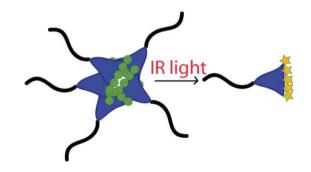
1a: R₁=CH₃, R₂=CH₃; 1b: R₁=CH₃, R₂=OC₂H₅; 1c: R₁=OC₂H₅, R₂=OC₂H₅

2081

Two-photon degradable supramolecular assemblies of linear-dendritic copolymers

Justin L. Mynar, Andrew P. Goodwin, Joel A. Cohen, Yingzhong Ma, Graham R. Fleming and Jean M. J. Fréchet*

Micelles of dendritic-linear copolymers have been developed that release a payload after being stimulated by an infrared laser.

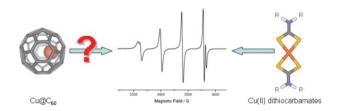


2083

A reassignment of the EPR spectra previously attributed to Cu@C₆₀

Bevan Elliott, Keqin Yang, Apparao M. Rao, Hadi D. Arman, William T. Pennington and Luis Echegoven*

EPR spectra attributed to the endohedral metallofullerene Cu@C60 are better explained by the previously characterized Cu(II) dithiocarbamate family of compounds.



AUTHOR INDEX

Arman, Hadi D., 2083 Arnold, Dennis P., 2046 Aviv, Iris, 1987 Backes, Marc, 2037 Benvegnu, T., 2054 Bhatt, Prashant M., 2057 Blaschette, Armand, 2060 Bowden, Ned B., 2051 Cammas-Marion, S., 2054 Catalano, Vincent J., 2016 Cavaliere-Jaricot, Sara, 2031 Chen, Dairong, 2043, 2072 Claessens, Christian G., 2000 Clyburne, Jason A. C., 2066 Cohen, Joel A., 2081 Cooper, Sian M., 2040 Cox, Russell J., 2040 Crosby, John, 2040 Crump, Matthew P., 2040 Cussen, Edmund J., 2048 Daniliuc, Constantin, 2060 Darbandi, Masih, 2031 de la Torre, Gema, 2000 Delépine, P., 2054 Desiraju, Gautam R., 2057 Doi, Yuko, 2022 Druckenbrodt, Christian, 2060 Duan, Yongzheng, 2072 du Mont, Wolf-W., 2060 Echegoyen, Luis, 2083 Elliott, Bevan, 2083

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Lehn, P., 2054 Lemiègre, L., 2054 Lin, Xian-Fu, 2078 Liu, Bo-Kai, 2078 Ma, Yingzhong, 2081 Mas-Ballesté, Rubén, 2063 Matano, Yoshihiro, 2069 Metlen, Andreas, 2025 Miller II, A. Lee, 2051 Miyasaka, Hitoshi, 2046 Montier, T., 2054 Mynar, Justin L., 2081 Nann, Thomas, 2031 Nazeeruddin, Mohammad K., 2025 Nishinaka, Taro, 2022 O'Callaghan, Michael P., 2048 Okoshi, Kento, 2022 Pennington, William T., 2083 Poplin, Jane Holly, 2025 Que, Jr., Lawrence, 2063 Radius, Udo, 2037 Ramnial, Taramatee, 2066 Rao, Apparao M., 2083 Rauchfuss, Thomas B., 2019 Réthoré, G., 2054 Rogers, Robin D., 2025 Ruthe, Frank, 2060 Schaub, Thomas, 2037 Simpson, Thomas J., 2040 Slominski, Luke M., 2063

Song, Yang, 2043 Spear, Scott K., 2025 Sugiura, Ken-ichi, 2046 Swatloski, Richard P., 2025 Tam, Anthony Yiu-Yan, 2028 Tam-Chang, Suk-Wah, 2016 Tanaka, Masanobu, 2069 Taylor, Stephanie A., 2066 Thomas, Christopher M., 2040 Tian, Yang, 2072 Torres, Tomás, 2000 Umeyama, Tomokazu, 2069 Walsby, Charles J., 2066 Wang, Bing-Wu, 2034 Wang, Guoxin, 2028 Willis, Christine L., 2040 Wong, Keith Man-Chung, 2028 Wu, Ji'en, 2040 Wu, Qi, 2078 Wunderlich, Stefan, 2075 Xu, Jian-Ming, 2078 Yam, Vivian Wing-Wah, 2028 Yamashita, Masahiro, 2046 Yan, Chun-Hua, 2034 Yang, Keqin, 2083 Yashima, Eiji, 2022 Yue, Yan-Feng, 2034 Zampella, Giuseppe, 2019 Zhan, Sihui, 2043 Zhang, Fu, 2078

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