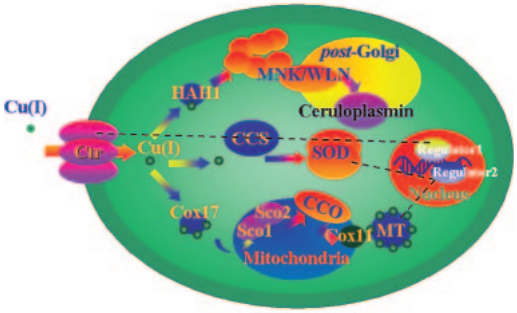
Chemistry Letters

http://www.csj.jp/journals/chem-lett/

Vol.33 No.8
August, 2004

CMLTAG
ISSN 0366-7022

Highlight Review

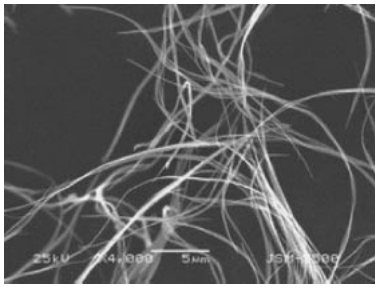


Ivano Bertini and Antonio Rosato

Genome sequencing projects are providing researchers with an unprecedented wealth of information. This information has the potential to make a deep impact on how experiments are planned and the physiology of living organisms is investigated. One field where the availability of genome sequence has not been thoroughly exploited yet is bioinorganic chemistry. The latter discipline deals with the interaction of biological molecules with inorganic compounds. In this review we give an overview of some aspects of the interplay of genome sequencing projects and bioinorganic chemistry.

Letter

Manganese oxide nanofibers with dimensions of tens of nanometers in diameter and tens of micrometers in length were prepared from manganese oxide nanosheets by hydrothermal reaction in a cationic surfactant solution.

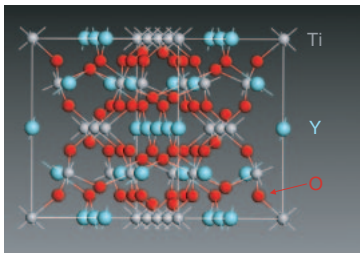


Zhibin Tian, Qi Feng, Naoto Sumida, Yoji Makita, and Kenta Ooi

954 **Photocatalytic Water Splitting into H_2 and O_2 over $R_2Ti_2O_7$ (R = Y, Rare Earth) with Pyrochlore Structure**

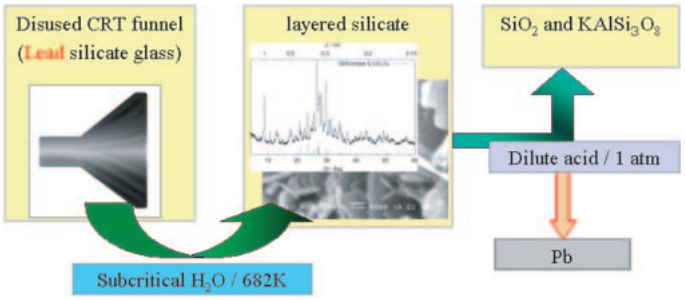
Ryu Abe, Masanobu Higashi, Zhigang Zou, Kazuhiro Sayama, and Yoshimoto Abe

$Y_2Ti_2O_7$, the first example of an active pyroclore material for the photocatalytic splitting of water into H_2 and O_2 under UV-light irradiation.



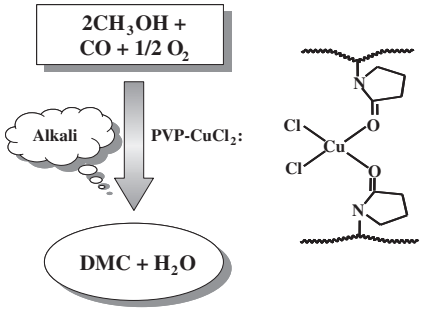
956 **A Novel Process Utilizing Subcritical Water to Remove Lead from Wasted Lead Silicate Glass**

Hiroshi Miyoshi, Danping Chen, and Tomoko Akai



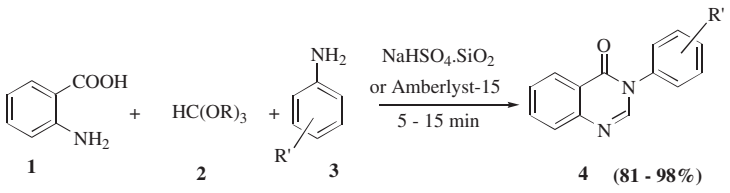
958 **A Remarkable Effect of Alkali Addition in the Oxidative Carbonylation of Methanol to Dimethyl Carbonate Catalyzed by a Polymer-complexed Cu(II) Catalyst System**

Wei-Liang Feng, Yong Cao, Nan Yi, Wei-Lin Dai, and Kang-Nian Fan



960 **Silica-supported Sodium Hydrogen Sulfate and Amberlyst-15 : Two Efficient Heterogeneous Catalysts for Single-step Synthesis of 4(3*H*)-Quinazolinones from Anthranilic Acid, Ortho Esters, and Amines under Solvent Free Conditions**

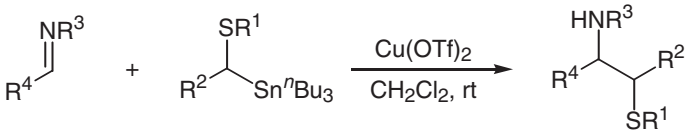
Biswanath Das and Joydeep Banerjee

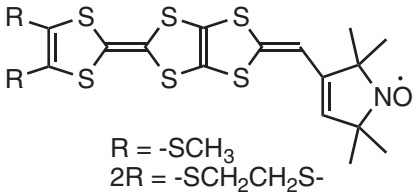


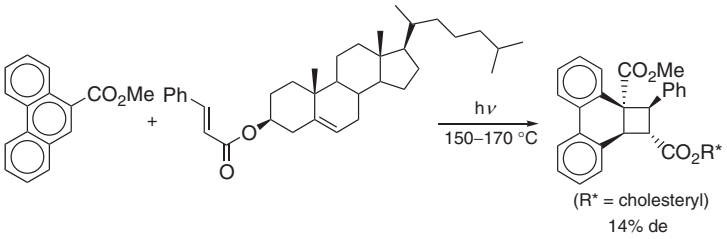
962 **Copper(II) Triflate-mediated Addition Reaction of α-Sulfurated Alkylstannanes to Imines: Facile Synthesis of Vicinal-amino Sulfides**

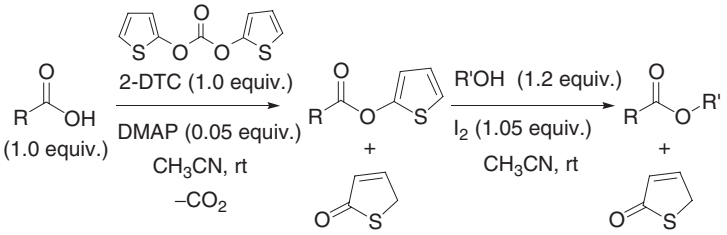
Hirotaka Kagoshima and Naoshi Takahashi

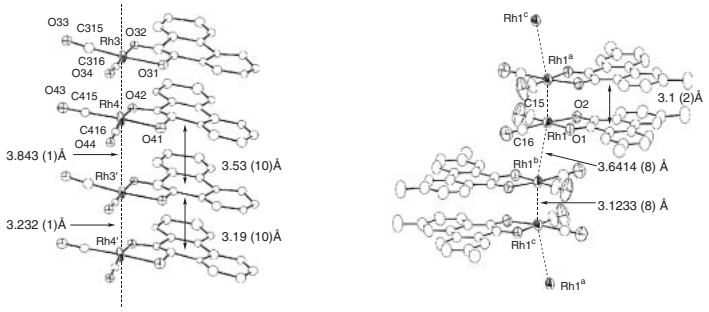
Copper(II) triflate-mediated addition reaction of α-sulfurated alkylstannanes to imines afforded the corresponding vicinal-amino sulfides in good yields.

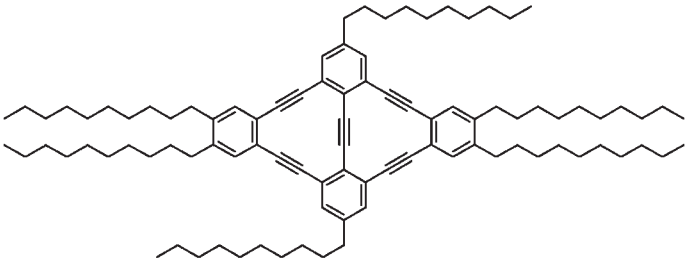




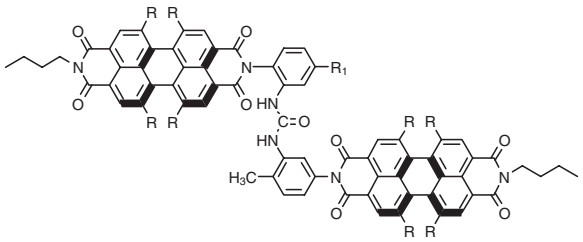






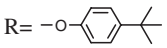


974 **New Fluoride-selective Red Fluorescent Chemosensors Based on Perylene Derivatives**

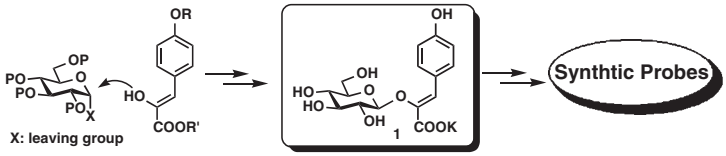


Jun Ren, Qiaochun Wang, Dahui Qu, Xueli Zhao, and He Tian

TM1: R_1= H
TM2: R_1= CH_3

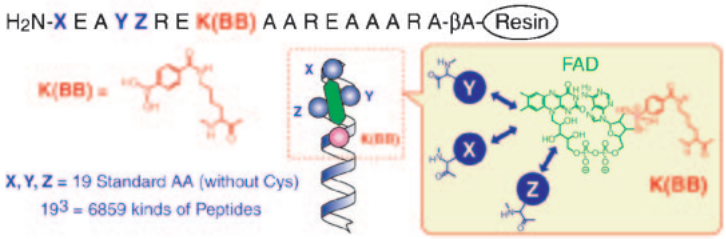
R= 

976 **Biomimetic Synthesis of a Leaf-opening Factor, Potassium Isolespedezate, by Direct Formation of Enol-glycoside**



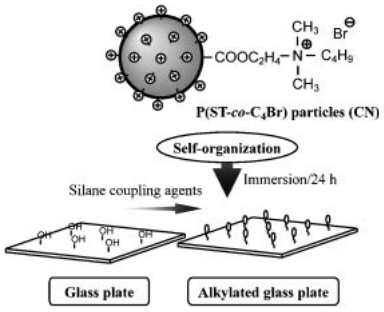
Takanori Sugimoto and Minoru Ueda

978 **Design of FAD-binding Peptide Using a Combinatorial α-Helix Peptide Library**



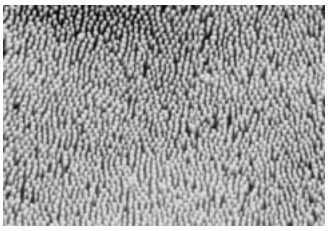
Seiji Sakamoto, Ippei Okano, and Kazuaki Kudo

980 **Monolayer Formation of Cationic Polymer Particles on Hydrophobic Solid Substrates in Aqueous System**



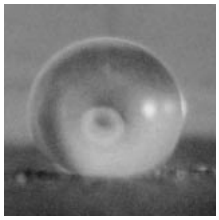
Masaru Watanabe, Seigou Kawaguchi, and Katsutoshi Nagai

982 **Direct Electrochemical Fabrication of Metallic Nanopillar Array on Au Electrode Surface by the Template Technique**

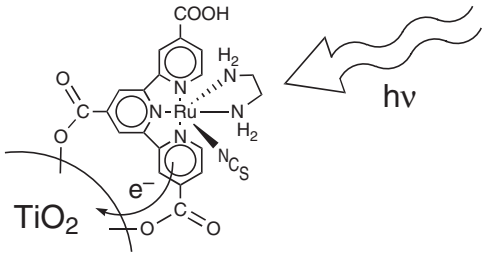


Metallic nanopillar array on gold electrode surface was prepared by a novel, simple approach employing cysteamine as a molecular anchor and anodic aluminum oxide as template without any sputtered metal as electrical conductor.

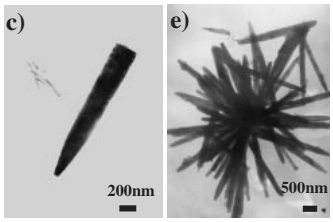
Xia-Yan Wang, Hui Zhong, Jin-Hua Yuan, Dong Sheng, Xiang Ma, Jing-Juan Xu, and Hong-Yuan Chen



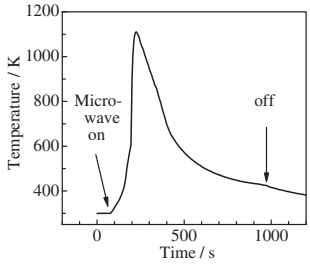
Contact angle = 156°



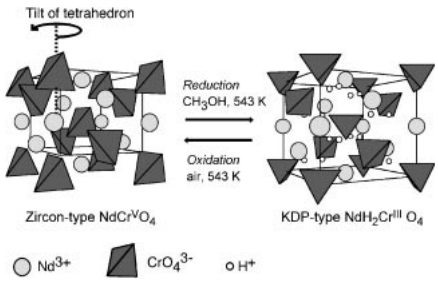
Single-crystalline zinc oxide with needle-like and flower-like morphologies has been successfully synthesized by decomposition of $Zn(OH)_4^{2-}$ in aqueous solution at 90 °C using zinc acetate or zinc nitrate as the zinc source and sodium hydroxide as both an alkali and a complexing reagent. This method is simple, surfactant-free and low-cost for large-scale production of ZnO.



The temperature of the raw materials, mixture of Y_2O_3, V_2O_5 and Eu_2O_3, irradiated with a microwave was rose up to 1111 K within 150 s, followed by a sharp drop in the temperature in spite of irradiating the microwave continuously.

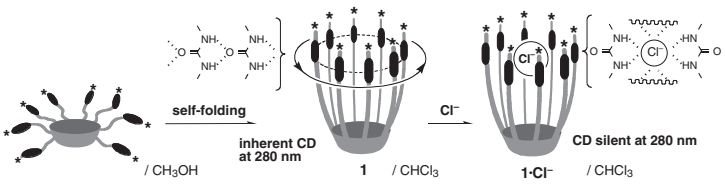


Reversible structure change of the zircon-type $NdCrO_4$ through reduction with methanol and air oxidation.



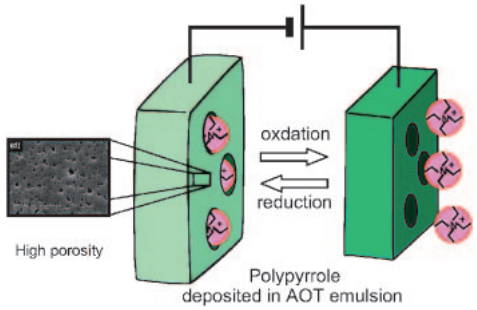
994 **Urea-functionalized Resorcinarenes: Preparation, Self-folding, and Their CD Phenomena Caused by Chiral Urea Termini through Intramolecular Hydrogen Bonding Interactions**

Osamu Hayashida, Jun-ichi Ito, Shinji Matsumoto, and Itaru Hamachi



996 **Improved Cathodic Expansions of Electrochemomechanical Behavior in Polypyrrole Films Electrodeposited from Aerosol OT Emulsion**

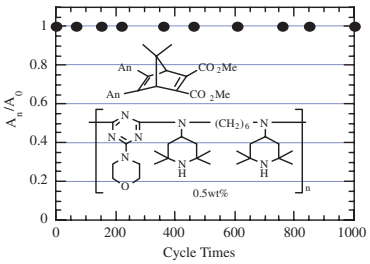
Wataru Takashima, Shyam S. Pandey, and Keiichi Kaneto



998 **Improved Durability of Norbornadiene Derivatives Using Antioxidized Reagent**

Takabumi Nagai and Tadatomi Nishikubo

It was found that improvement in durability of NBDs against degradation could be achieved by an antioxidized reagent.

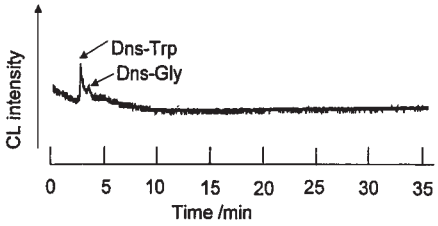


The effect of the antioxidized reagent for the durability of NBD derivative

1000 **Capillary Electrophoresis with Chemiluminescence Detector Using On-capillary Detection**

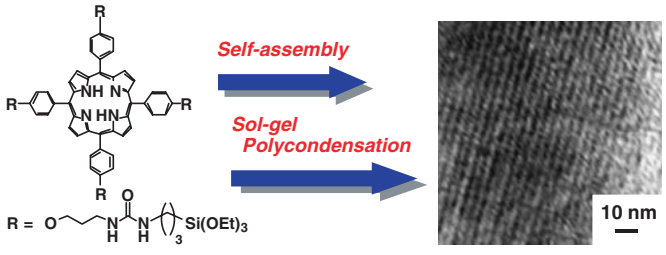
Kazuhiko Tsukagoshi, Tatsuya Fujii, and Riichiro Nakajima

The CE with CL detector using on-capillary detection was developed on the basis of the new concept of CL analysis in CE, taking advantage of CL performance of LUMICA and the oxidant.

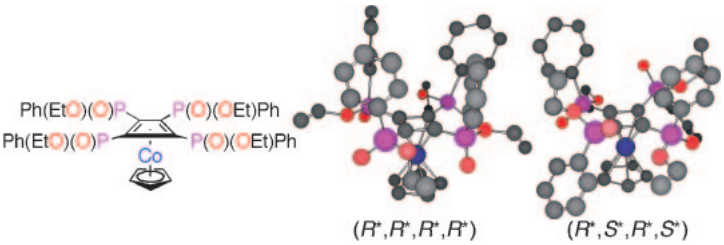


1002 **Immobilization of a Two-dimensional Porphyrin Assembly by Sol–Gel Polycondensation in the Gel Phase**

Takanori Kishida, Norifumi Fujita, Kazuki Sada, and Seiji Shinkai

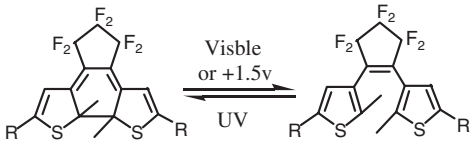


1004 **Synthesis and Structure of [η^4-Tetrakis-(arylethoxyphosphoryl)cyclobutadiene](η^5-cyclopentadienyl)cobalt(I) Complexes**



Shigeru Sasaki, Kiyotoshi Kato, Yoshihiro Tanabe, and Masaaki Yoshifuji

1006 **Photoelectrochromic Dithienylperfluorocyclopentene Derivatives**

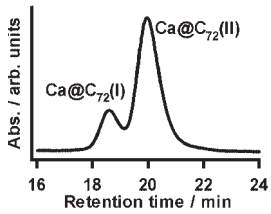


Dithienylcyclopentene derivatives may undergo photochemical ring-closing reaction and both photochemical and electrochemical ring-opening reaction, and the substitutent attached to the 5-position of the thiophene heterocycle has a decisive influence on the electrochemical ring-opening reaction.

Xin-Hong Zhou, Fu-Shi Zhang, Peng Yuan, Fan Sun, Shou-Zhi Pu, Fu-Qun Zhao, and Chen-Ho Tung

1008 **Isolation and Characterization of a New Isomer of Ca@C_{72}**

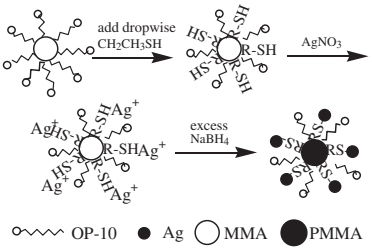
A new (second) isomer of Ca@C_{72} was isolated. Ca@C_{72}(I) is the isomer reported before and Ca@C_{72}(II) is the new variant. It was confirmed that at least one of the two Ca@C_{72} isomers has C_{72} cage that does not satisfy the so-called isolated pentagon rule.



Takafumi Ichikawa, Takeshi Kodama, Shinzo Suzuki, Ryosuke Fujii, Hiroyuki Nishikawa, Isao Ikemoto, Koichi Kikuchi, and Yohji Achiba

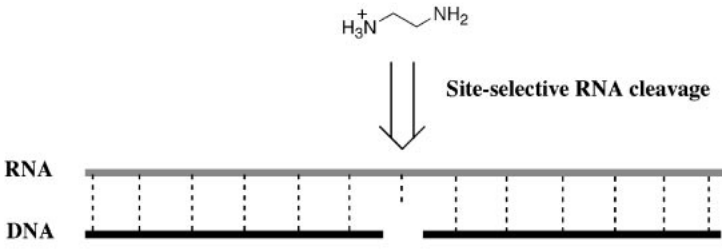
1010 **"One-pot" Fabrication of Ag/PMMA "shell/core" Nanocomposites by Chemical Reduction Method**

The Ag/PMMA shell/core nanocomposites were fabricated by one-pot emulsification method. $AgNO_3$ are both silver source and initiator for polymerization of MMA. The polymerization took place when the Ag^+ was reduced to Ag. The microstructures of the nanocomposites were characterized by TEM, XRD, FTIR and AFM.

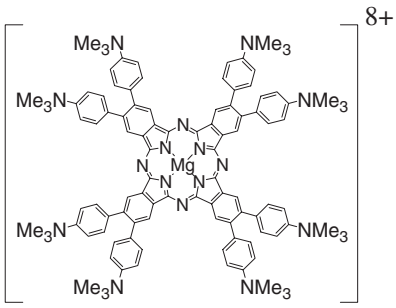


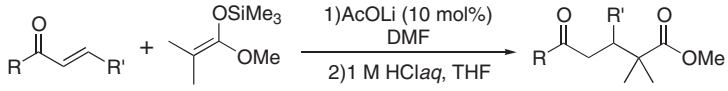
Limei Wang and Dajun Chen

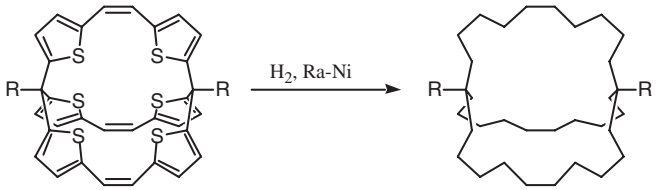
1012 **Noncovalent Combination of Oligoamine and Oligonucleotide as Totally Organic Site-selective RNA Cutter**

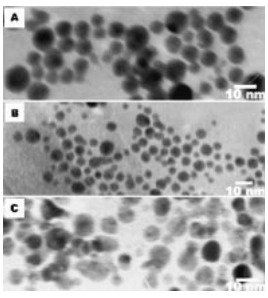


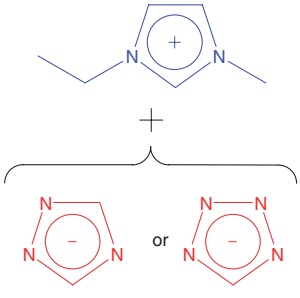
Yun Shi, Fumiya Niikura, Akinori Kuzuya, and Makoto Komiyama











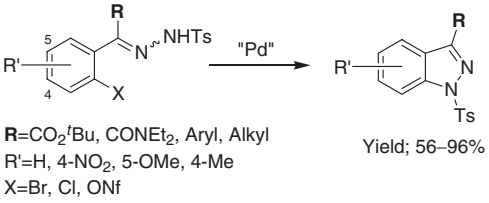
1024 **Phosphoprotein-Selective Recognition and Staining in SDS-PAGE by Bis-Zn(II)-dipycolylamine-Appended Anthracene**

Akio Ojida, Takahiro Kohira, and Itaru Hamachi

A novel fluorescence detection system using a chemosensor for phosphoprotein in gel electrophoresis analysis has been developed. The system employed bis-Zn(II)-dipycolylamine -appended anthracene as a fluorescent staining dye to accomplish convenient and selective detection of phosphproteins in SDS-PAGE.

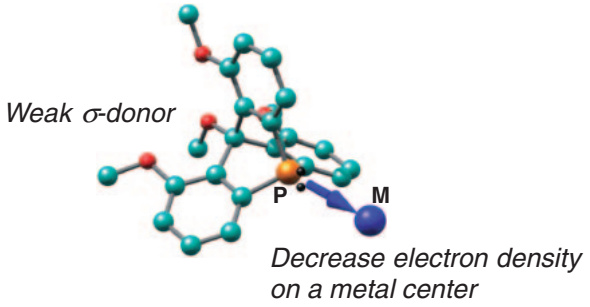
1026 **Efficient Synthesis of 3-Substituted Indazoles Using Pd-Catalyzed Intramolecular Amination Reaction of *N*-Tosylhydrazones**

Kiyofumi Inamoto, Mika Katsuno, Takashi Yoshino, Ikue Suzuki, Kou Hiroya, and Takao Sakamoto



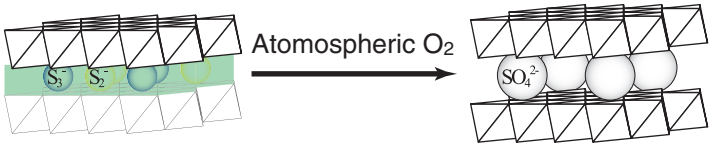
1028 **Evaluation of σ-Donating Ability of a 9-Phosphatriptycene and Its Application to Catalytic Reactions**

Tomohiro Agou, Junji Kobayashi, and Takayuki Kawashima



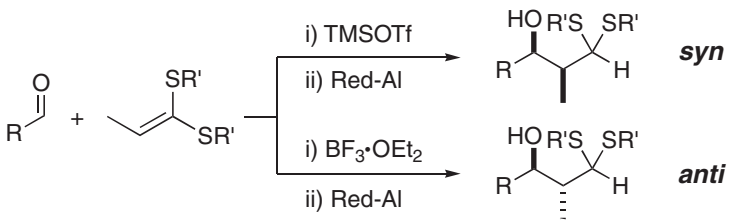
1030 **Easily Oxidizable Polysulfide Anion Occluded in the Interlayer Space of Mg/Al Layered Double Hydroxide**

Makoto Ogawa and Fumihiro Saito



1032 **A Novel Synthesis of *syn* and *anti* β-Hydroxy Dithioacetals, Masked Cross-Aldols between Aldehydes**

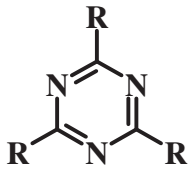
Terunobu Saitoh, Naohisa Jimbo, and Junji Ichikawa



1034 **Efficient Electron Injection Characteristics of Triazine Derivatives for Transparent OLEDs (TOLEDs)**

Takahito Oyamada, Hiroki Yoshizaki, Hiroyuki Sasabe, and Chihaya Adachi

Triazine (TRZ) derivatives possessing metal coordination sites in their structures demonstrate excellent electron transport characteristics in transparent organic light emitting diodes (TOLEDs), suggesting efficient electron injection from an indium-tin-oxide (ITO) cathode into the TRZ layer.



1036 **Synthesis of K–β-Al_2O_3 Powder by Hydrothermal Multicomponent Coprecipitation Method**

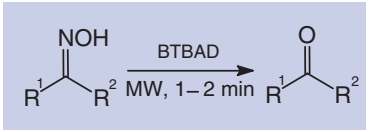
Xiangfeng Zhang, Zhaoyin Wen, Zuxiang Lin, Zhonghua Gu, and Xiaohe Xu

Both $KAl(OH)_2CO_3$ and $NH_4Al(OH)_2CO_3$ have the same structures, and there is only a little difference in the radius of K^+ (133 pm) and NH_4^+ (143 pm). Therefore, it is possible to synthesize a new kind of solid solution of $K_xNH_{4(1-x)}Al(OH)_2CO_3$ if both the cations exist in a hydrothermal reaction system simultaneously. By calcining the solid solution precursor, K–β-Al_2O_3 powder can be obtained immediately.

$$AlO(OH)_2^- + HCO_3^- + xK^+ + (1-x)NH_4^+ \rightarrow K_x(NH_4)_{1-x}Al(OH)_2CO_3 + OH^-$$

1038 **Regeneration of Carbonyl Compounds from Oximes Using BTBAD under Microwave Irradiation**

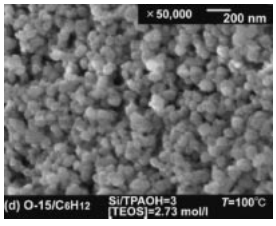
R. Murugan and B. S. R. Reddy



1040 **New Method for Preparing Monodispersed Nanocrystalline Silicalite via Hydrothermal Synthesis in Water/Surfactant/Oil Solution**

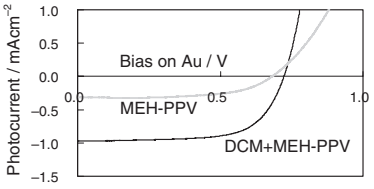
Teruoki Tago, Mieko Nishi, Yousuke Kouno, and Takao Masuda

Monodispersed silicalite nanocrystals with a diameter of 80 − 150 nm were successfully prepared in water–surfactant–oil solution.



1042 **Performance Enhancement by Blending an Electron Acceptor in TiO_2/polyphenylene-vinylene/Au Solid-state Solar Cells**

Kohshin Takahashi, Kaname Seto, Takahiro Yamaguchi, Jun-ichi Nakamura, Chiho Yokoe, and Kazuhiko Murata



When an electron acceptor DCM was blended into the MEH-PPV layer in the TiO_2/MEH-PPV/Au sandwich-type solar cell, the performance was remarkably enhanced, resulting in 0.47% of the energy conversion yield under the irradiation of AM1.5–100 mW/cm^2.

1044 **Time-selective Hydrothermal Synthesis of SnS Nanorods and Nanoparticles by Thiourea Hydrolysis**

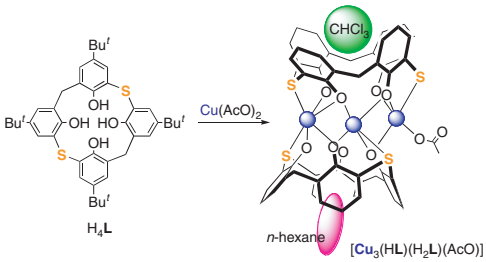
M. Mohan Rao, M. Jayalakshmi, and R. Sudarshan Reddy

SnS nanorods and nanoparticles are obtained by time selective single step hydrothermal synthesis using thiourea as a source of sulphur and ammonium ions. In this simple method in situ generated ammonium ion acts as structure-directing agent.

1046 **A *p-tert*-Butyldithiacalix[4]arene-Copper(II) Complex Having Double-cone Shape of Unique Heteroditopic Inclusion Behavior**

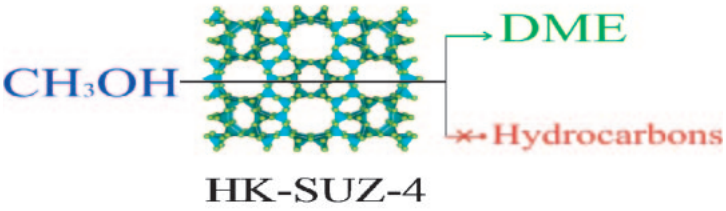
Noriyoshi Kon, Nobuhiko Iki, Takashi Kajiwara, Tasuku Ito, and Sotaro Miyano

X-ray diffraction revealed a single crystal of a Cu(II) complex of *p-tert*-butyldithiacalix[4]arene (H_4**L**) to be [Cu_3(**HL**)(H_2**L**)(AcO)], in which three Cu(II) ions are sandwiched by two calixarene ligands including different guest molecules, $CHCl_3$ and hexane, in each cone-shaped cavity. This is the first example of calixarene-metal complex showing heteroditopic inclusion.



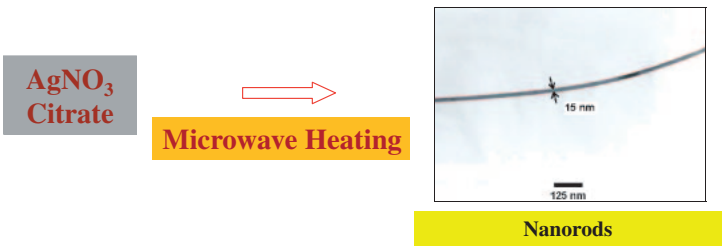
1048 **Zeolite SUZ-4 as Selective Dehydration Catalyst for Methanol Conversion to Dimethyl Ether**

Shan Jiang, Young Kyu Hwang, Sung Hwa Jhung, Jong-San Chang, Jin-Soo Hwang, Tianxi Cai, and Sang-Eon Park



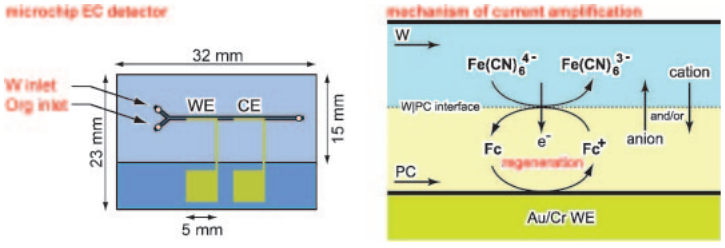
1050 **Preparation of Silver Nanorods by Rapid Microwave Heating**

Fu-Ken Liu, Yu-Cheng Chang, Pei-Wen Huang, Fu-Hsiang Ko, and Tieh-Chi Chu



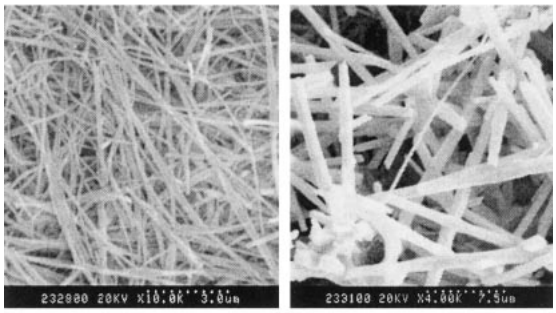
1052 **Amplified Electrochemical Detection Based on Redox Cycle at a Liquid/Liquid Interface Formed in a Microchannel**

Masaki Torimura, Nobuyuki Ichieda, Takeshi Ito, Seishiro Ohya, and Hiroaki Tao



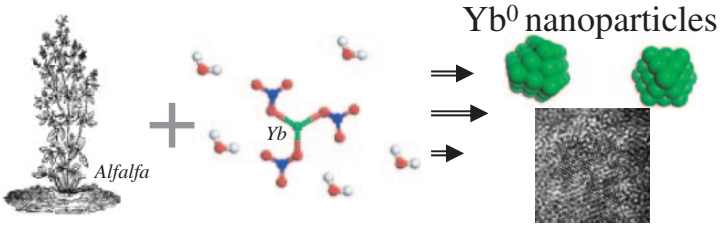
1054 **CTAB-controlled Synthesis of One-dimensional Selenium Nanostructures**

Juan Zhang, Sheng-Yi Zhang, and Hong-Yuan Chen



1056 **Synthesis and Structure Determination of Ytterbium Nanoparticles**

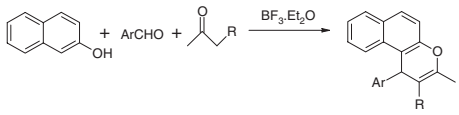
Jorge A. Ascencio, Ana C. Rodríguez-Monroy, Hong Bo Liu, and Gerardo Canizal



1058 **A Three-component Reaction of Phenol, Aldehyde, and Active Methylene Substrate under Lewis acid Catalysis: Successful Trapping of *o*-Quinone Methide to Afford Benzopyran Systems**

Sabir H. Mashraqui, Mamta B. Patil, Hitesh D. Mistry, Shailesh Ghadigaonkar, and Auke Meetsma

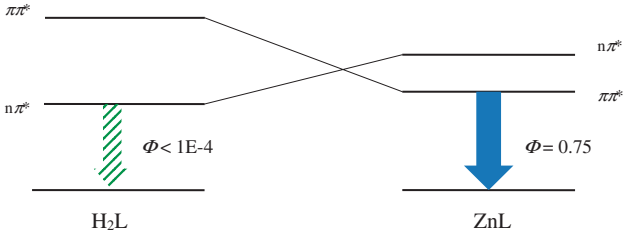
As shown in the general reaction, a 3-component condensation under $BF_3.Et_2O$ catalysis affords benzopyranyl products in satisfactory yields.



1060 **A New Blue Photoluminescent Salen-like Zinc Complex with Excellent Emission Quantum Yield**

Massimo La Deda, Mauro Ghedini, Iolinda Aiello, and Annarita Grisolia

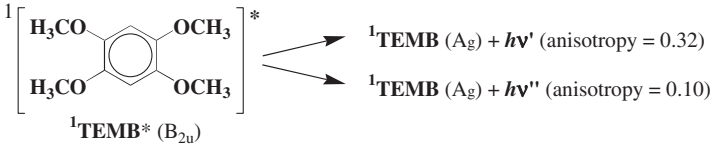
The salen-like ligand, *N*,*N*′-bis(salicylidene)-1,12-dodecylenediamine, H_2L, reacts with $(CH_3COO)_2Zn{\cdot}2H_2O$ giving the ZnL complex. While the ligand is scarcely luminescent ($\Phi < 0.01\%$), ZnL is a strong blue emitter with 75% emission quantum yield.



1062 **Dual Fluorescence of 1,2,4,5-Tetramethoxybenzene in 77 K Matrices Studied by Fluorescence Polarization**

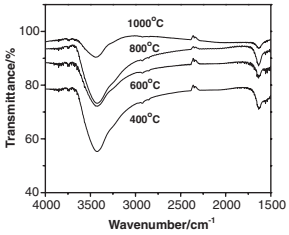
Nobuyuki Ichinose, Kazutoyo Kishimoto, Jun-ichiro Kinugasa, Masahide Hagiri, and Toshihiro Nakayama

Fluorescence anisotropy measurement of 1,2,4,5-tetramethoxybenzene (TEMB) in 77 K EPA matrix has revealed its dual fluorescence nature.



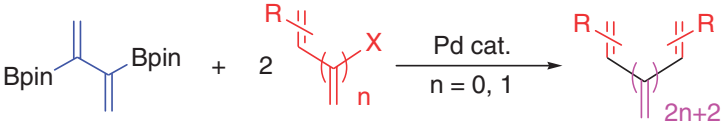
1064 **Preparation of La_2O_3-doped CeO_2–ZrO_2 Solid Solution with High Thermal Stability by Water-in-Oil Microemulsion**

Nanoparticles of the CeO_2–ZrO_2–La_2O_3 solid solution were prepared by the W/O microemulsion method. Ceria–zirconia–lanthana (Ce/Zr/La = 1/1/0.06, mol) sample calcined at 1000 °C for 4 h has higher surface area (126 m^2/g) and excellent thermal stability. Its particle size is 5–10 nm. The presence of lanthana in the sample can improve obviously the thermal stability of the CeO_2–ZrO_2 solid solution.



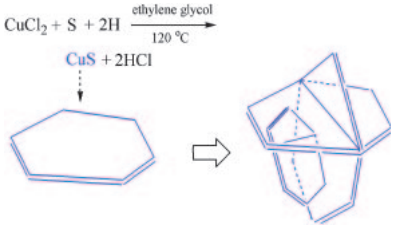
Pingping Jiang, Guanzhong Lu, Yangyang Li, Yanglong Guo, Yun Guo, and Xingyi Wang

1066 **Facile Synthesis of Dendralenes Based on the Cross-coupling Reaction of 2,3-Bis(pinacolato)boryl-1,3-butadiene**



Masaki Shimizu, Kei Tanaka, Takuya Kurahashi, Katsuhiro Shimono, and Tamejiro Hiyama

1068 **A Nonaqueous Route to Prepare Novel CuS Macroporous Material**



Songming Wan, Fan Guo, Yiya Peng, Liang Shi, and Yitai Qian

