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Highlight Review

Control over Flexibility of Entangled Porous Coordination Frameworks by Molecular and Mesoscopic Chemistries
Shuhei Furukawa, Yoko Sakata, and Susumu Kitagawa**

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Highlight Review

- 570 Control over Flexibility of Entangled Porous Coordination Frameworks by Molecular and Mesoscopic Chemistries

Shuhei Furukawa,* Yoko Sakata, and Susumu Kitagawa*
doi:10.1246/cl.130357



Entangled Framework



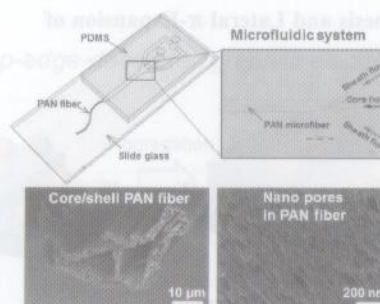
Control over flexibility

Entangled porous coordination frameworks, wherein two or more distinct frameworks are catenated over an entire crystal, are known to demonstrate unique structural flexibilities in response to the accommodation of molecules in the voids between the frameworks. In this highlight review, we introduce key functions of entangled frameworks based on two principles of their dynamic features: shearing and displacement. We further describe strategies to control the flexibilities; one is a molecular chemistry approach to functionalize frameworks by chemical modification, and the other is a mesoscopic chemistry approach to change the physical form, in particular, the crystal size.

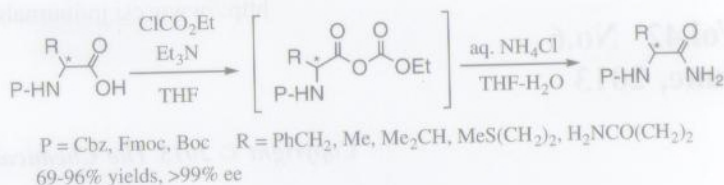
Letter

- 577 Facile Synthesis of Hollow Core-Porous Shell Structure Polyacrylonitrile (PAN) Microfibers Using a Simple Microfluidic System

Minyung Song, Sung-rheb Cho, and Suk Tai Chang*
doi:10.1246/cl.130120

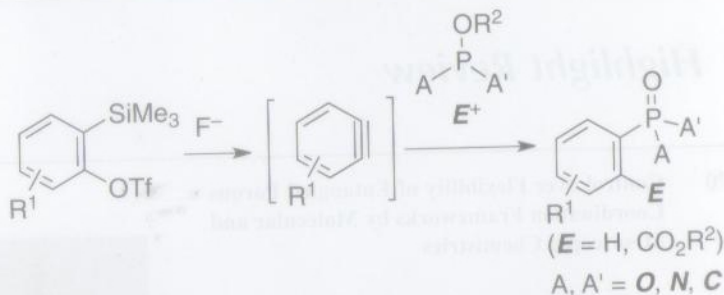


- 580 Convenient Preparation of Primary Amides via Activation of Carboxylic Acids with Ethyl Chloroformate and Triethylamine under Mild Conditions



Takuya Noguchi, Masahiro Sekine, Yuki Yokoo, Seunghye Jung, and Nobuyuki Imai*
doi:10.1246/cl.130096

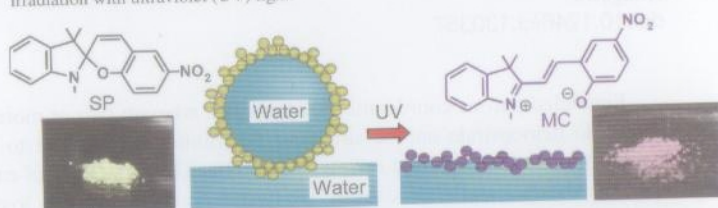
- 583 Synthesis of Diverse Aromatic Oxophosphorus Compounds by the Michaelis-Arbuzov-type Reaction of Arynes



Suguru Yoshida and Takamitsu Hosoya*
doi:10.1246/cl.130116

- 586 Ultraviolet-light-responsive Liquid Marbles

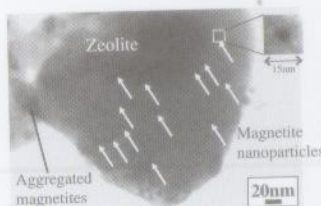
Photoresponsive liquid marbles were prepared using spiropyran (SP) powder. The liquid marbles were transferred to a Petri dish containing water and remained stable on the water surface for more than a week in the dark. The liquid marbles disintegrated immediately upon irradiation with ultraviolet (UV) light.



Keita Nakai, Syuji Fujii, Yoshinobu Nakamura, and Shin-ichi Yusa*
doi:10.1246/cl.130119

Electronic Supporting Information

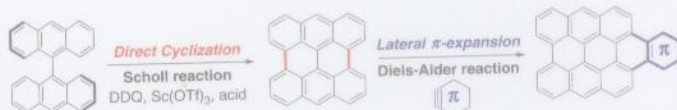
- 589 Preparation of Composite Material of Na-P1-Type Zeolite and Magnetite for Cs Decontamination



Hiromichi Aono,* Kazumasa Tamura, Erni Johan, Rie Yamauchi, Toru Yamamoto, Naoto Matsue, and Teruo Henmi
doi:10.1246/cl.130123

For the decontamination of radioactive ¹³⁴Cs and ¹³⁷Cs using the magnetic collection, a new composite material consisting of the Na-P1-type zeolite and magnetite was synthesized from the waste fly-ash of thermal power stations and iron chlorides. The existence of nanosized magnetites in the polycrystalline zeolite (several micrometers) was confirmed by TEM observations. The cation-exchange capacity (CEC) and magnetic property of these composite materials were characterized.

- 592 Facile Synthesis and Lateral π -Expansion of Bisanthenes



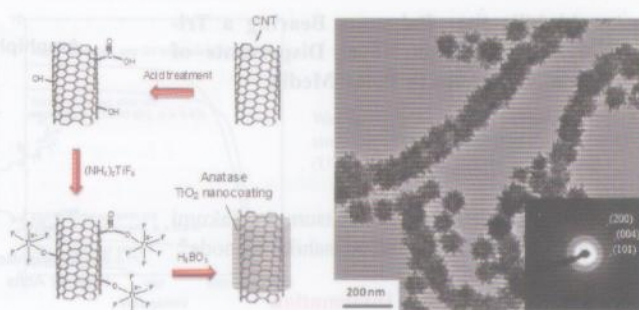
Akihito Konishi, Yasukazu Hirao, Kouzou Matsumoto, Hiroyuki Kurata, and Takashi Kubo*
doi:10.1246/cl.130153

Electronic Supporting Information

- 595 **One-pot Anatase TiO₂ Nanocoating on Multiwalled Carbon Nanotubes via Liquid-phase Deposition Process**

Daisuke Sakemi, Hackkeun Lee, Roman Selyanchyn, and Seung-Woo Lee*
doi:10.1246/cl.130117

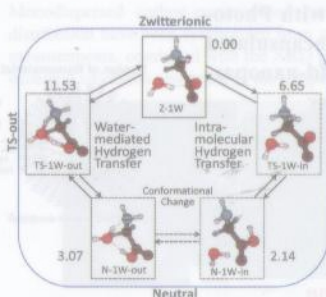
Electronic Supporting Information



- 598 **Ab Initio QM/MM-MC Study on Hydrogen Transfer of Glycine Tautomerization in Aqueous Solution: Helmholtz Energy Changes along Water-mediated and Direct Processes**

Hidehori Miyamoto and Misako Aida*
doi:10.1246/cl.130126

Electronic Supporting Information

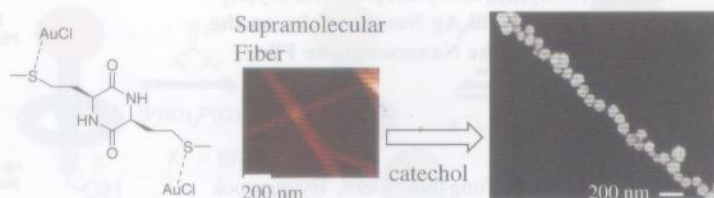


Routes of hydrogen transfer of glycine with one water (QM complex). The QM complex is surrounded by 100 MM water molecules to calculate Helmholtz free-energy changes in aqueous solution. Helmholtz energy changes (in kcal mol⁻¹) are indicated relative to Z-1W.

- 601 **Transformation of Gold(I)-cyclo[Met-Met-] Complex Supramolecular Fibers into Aligned Gold Nanoparticles**

Masahiro Furutani and Kazuaki Kudo*
doi:10.1246/cl.130106

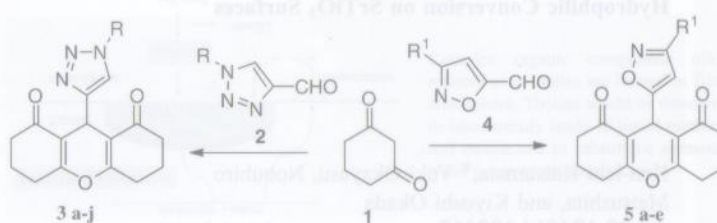
Electronic Supporting Information



- 604 **Indium Triflate-promoted Synthesis of Novel 1,2,3-Triazole-, and Isoxazole-substituted Xanthene-1,8(2H)-dione Derivatives**

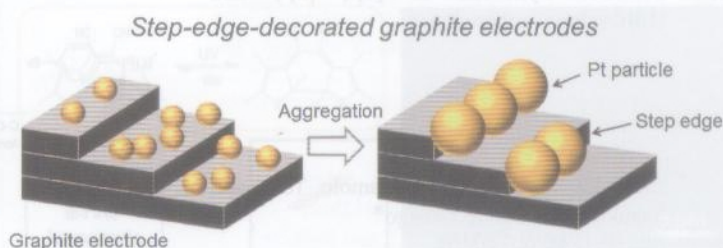
P. Sambasiva Rao, K. Rathnakar Reddy, P. Nagender, Royya Naresh Kumar, Pamulaparthi Shanthan Rao, and Banda Narsaiah*
doi:10.1246/cl.130134

Electronic Supporting Information



- 606 **Fabrication of Step-edge-decorated Graphite Electrodes with Platinum and Their Electrocatalytic Activities**

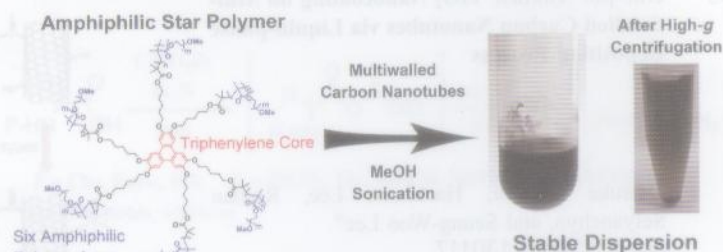
Kohei Miyazaki,* Tomokazu Fukutsuka, Takeshi Abe, and Zempachi Ogumi
doi:10.1246/cl.130072



- 609 **Amphiphilic Star Polymers Bearing a Triphenylene Core for Novel Dispersants of Carbon Nanotubes in Polar Media**

Jin Motoyanagi, Tomoyuki Matsumoto, Takumi Shiotani, Sadao Miki, and Masahiko Minoda*
doi:10.1246/cl.130077

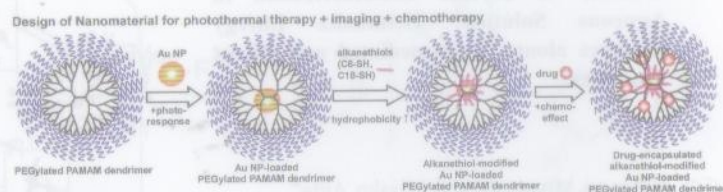
Electronic Supporting Information



- 612 **Design of a Novel Drug Carrier with Photo-responsive Properties: Drug-encapsulated and Alkanethiol-modified Gold-nanoparticle-loaded PEGylated Dendrimer**

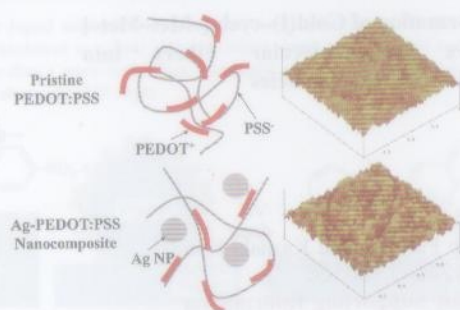
Chie Kojima,* Hiroki Kawabata, Atsushi Harada, Hiromichi Horinaka, and Kenji Kono
doi:10.1246/cl.130079

Electronic Supporting Information



- 615 **Effect of Surface Chemisorption between Poly(3,4-ethylenedioxythiophene):Poly(styrene sulfonate) and Ag Nanoparticles on the Conductivity of the Nanocomposite Film**

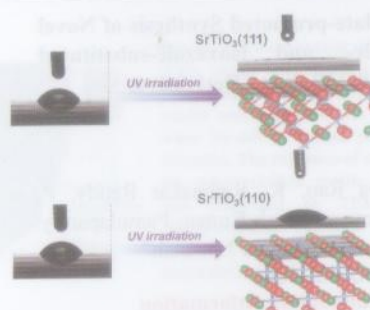
Seok-Joo Wang, Yong-June Choi, Byungwook Yoo, Yong-Hoon Kim, and Hyung-Ho Park*
doi:10.1246/cl.130087



- 618 **Crystal-face Dependence of Photoinduced Hydrophilic Conversion on SrTiO₃ Surfaces**

Ken-ichi Katsumata,* Yuki Okayasu, Nobuhiro Matsushita, and Kiyoshi Okada
doi:10.1246/cl.130115

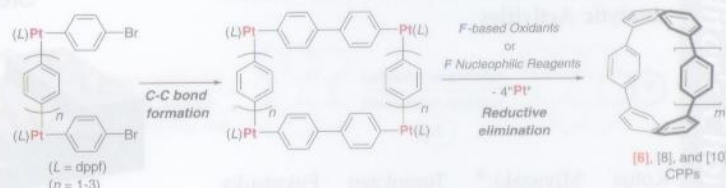
Electronic Supporting Information



- 621 **Selective Synthesis of [6]-, [8]-, and [10]Cycloparaphenylenes**

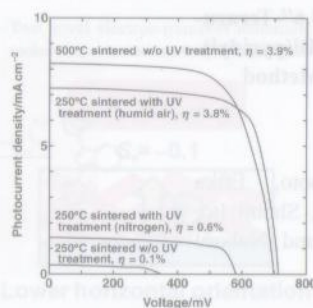
Eiichi Kayahara, Takahiro Iwamoto, Toshiyasu Suzuki, and Shigeru Yamago*
doi:10.1246/cl.130188

Electronic Supporting Information



624 **Low-temperature-sintered Dye-sensitized Solar Cell Using Surface Treatment of TiO₂ Photoelectrode with Ultraviolet Light**

Shungo Zen,* Daiki Saito, Ryo Ono,* and Tetsuji Oda
doi:10.1246/cl.130147

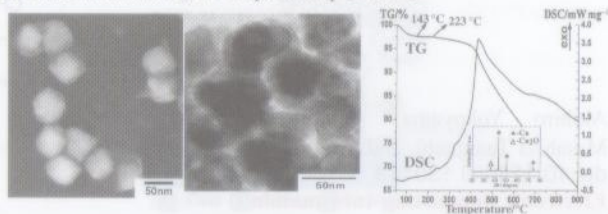


We develop a new technique to reduce the sintering temperature to 250 °C using ultraviolet (UV) treatment of TiO₂ photoelectrode.

627 **A Facile Synthesis of Monodispersed Carbon-encapsulated Copper Nanoparticles with Excellent Oxidation Resistance from a Refluxing-derived Precursor**

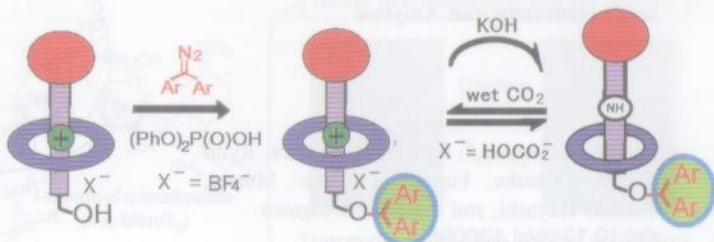
Xiaopeng Meng, Jiqui Wen, Yadong Yao,* Yi Ding, Yichao Gong, Changwu Zou, Guangfu Yin, Xiaoming Liao, Zhongbing Huang, and Xianchun Chen
doi:10.1246/cl.130064

Monodispersed carbon-encapsulated copper nanoparticles (CECNPs) with uniform size distribution have been synthesized from a precursor derived by a refluxing method. TG-DSC measurements, combined with the XRD patterns, indicate that the as-prepared CECNPs show excellent oxidation resistance to the temperature up to 900 °C.



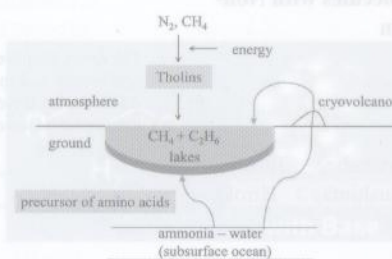
630 **Synthesis and Molecular Shuttling of [2]Rotaxanes under Mild Conditions**

Hideyuki Tukada,* Toshihiro Hiraki, and Hiroshi Nakamura
doi:10.1246/cl.130108
Electronic Supporting Information



633 **Titan Tholins as Amino Acid Precursors and Their Solubility in Possible Titan Liquidospheres**

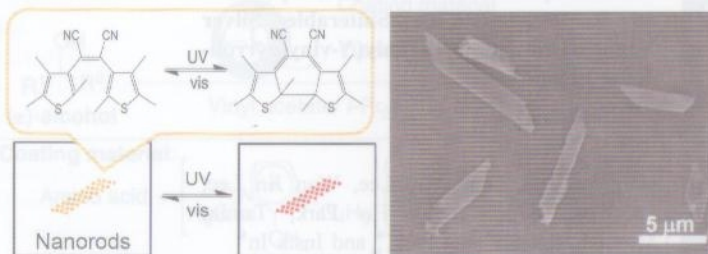
Jun Kawai,* Seema Jagota, Takeo Kaneko, Yumiko Obayashi, Bishun N. Khare, Christopher P. McKay, and Kensei Kobayashi
doi:10.1246/cl.130101



Complex organic compounds often referred to as tholins are formed in Titan atmosphere. Tholins would be dissolved in lakes mainly made of liquid methane and ethane and in subsurface ammonia water ocean to give amino acids.

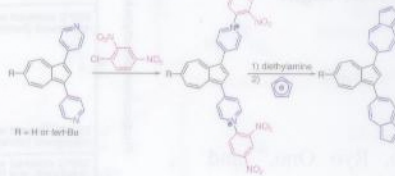
636 **Diarylethene Nanorods: Preparation, Crystal Structure, and Photochromic Properties**

Norio Tagawa,* Akito Masuhara, Shuji Okada, Hiroshi Katagiri, Tsunenobu Onodera, Hitoshi Kasai, and Hidetoshi Oikawa*
doi:10.1246/cl.130023



- 638 Synthesis of 1,6'-Bi- and 1,6':3,6''-Terazulenes from 1-Pyridyl- and 1,3-Di(pyridyl)-azulenes by the Ziegler-Hafner Method

Taku Shoji,* Atsuyo Yamamoto, Erika Shimomura, Mitsuhiro Maruyama, Shunji Ito, Tetsuo Okujima, Kozo Toyota, and Noboru Morita
doi:10.1246/cl.130157

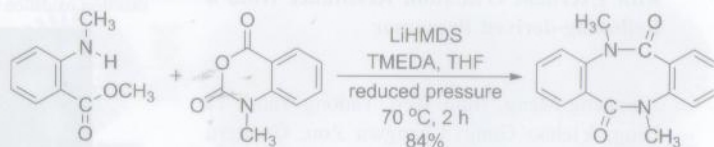


The synthesis of 1,6'-biazulenes **3a** and **3b** and 1,6':3,6''-terazulenes **7a** and **7b** was established by one-pot reactions via the Zincke-type ring-opening of the corresponding pyridinium salts with diethylamine, followed by the reaction with cyclopentadiene in the presence of sodium methoxide. The intramolecular charge-transfer characters between azulene rings were investigated by UV-vis spectroscopy and theoretical calculations.

- 641 Successive Formation of Two Amide Linkages between Two Benzene Rings

Akihiro Yokoyama,* Makoto Karasawa, Masahisa Taniguchi, and Tsutomu Yokozawa*
doi:10.1246/cl.130143

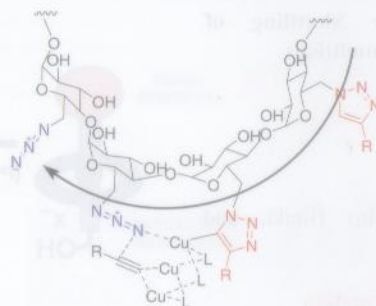
Electronic Supporting Information



- 643 Unique, Fast, and All-or-none Click Reaction on Cyclodextrin and Amylose

Hatsuo Yamamura,* Kyohei Shimohara, Ryuji Kurata, Yusuke Fujita, Kensuke Murata, Takaaki Hayashi, and Atsushi Miyagawa
doi:10.1246/cl.130095

Electronic Supporting Information



The chemical polymodification of cyclodextrins and amyloses proceeded fast by using the microwave-assisted Huisgen reaction in an all-or-none fashion without less-modified by-products.

- 646 Organic Semiconductor Molecules with Non-aromatic Core of 1,4-Dithiin

Hiroki Ito, Daichi Watanabe, Tatsuya Yamamoto, Noboru Tsushima, Hiroki Muraoka, and Satoshi Ogawa*
doi:10.1246/cl.130129

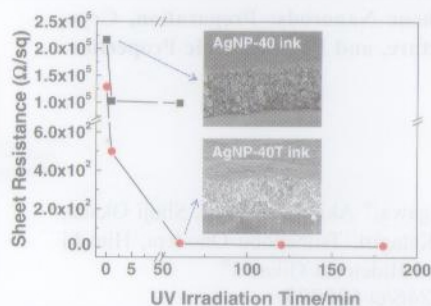
Electronic Supporting Information

The novel thiophene-condensed 1,4-dithiin derivatives having styryl or phenyl groups were synthesized and investigated the spectroscopic and electrochemical properties. The OFET devices using these derivatives exhibited typical p-type FET characteristics, though the core units of both molecules were not an aromatic compound.



- 649 Photocatalytic Effect of TiO₂ Nanoparticles on Room-temperature Sinterable Silver Nanoparticle Ink with Poly(*N*-vinylpyrrolidone) Ligand

Mi Yeon Lee, Jung Yup Lee, Won Jin Lee, So Yeon Kim, Young Ho Park, Tamim Mosaib, Sung Young Park,* and Insik In*
doi:10.1246/cl.121281



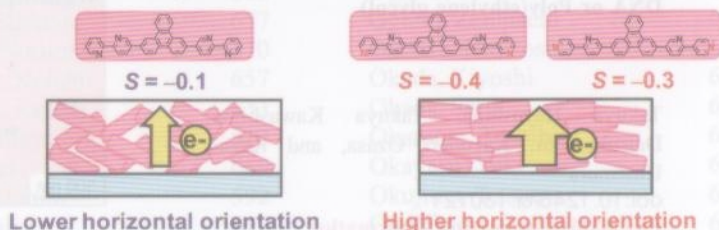
651 **Molecular Design of High-molecular-orientation Electron-transport Materials and Application to Organic Light-emitting Diodes**

Kazunori Togashi, Yuta Sagara, Takuma Yasuda, and Chihaya Adachi*

doi:10.1246/cl.130150

Electronic Supporting Information

Two novel electron-transport materials, 2,3'-Bpy-TP and 2,4'-Bpy-TP, with high horizontal molecular orientations to substrates, were synthesized for use in organic light-emitting diodes.

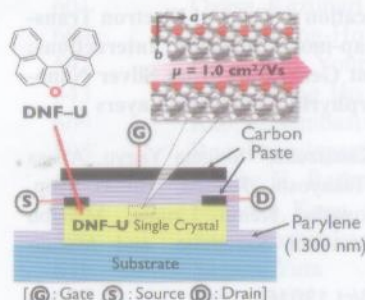


654 **Single-crystal Field-effect Transistors with a Furan-containing Organic Semiconductor Having a Twisted π -Electronic System**

Katsumasa Nakahara, Chikahiko Mitsui, Toshihiro Okamoto,* Masakazu Yamagishi, Kazumoto Miwa, Hiroyasu Sato, Akihito Yamano, Takafumi Uemura, and Jun Takeya*

doi:10.1246/cl.130133

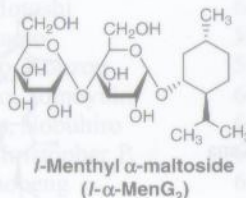
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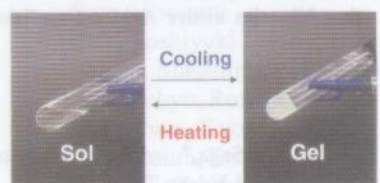
657 ***l*-Menthyl α -Maltoside as a Novel Low-molecular-weight Gelator**

Kohei Ide, Toshiyuki Sato, Jun Aoi, Hiroyuki Do, Keiichi Kobayashi, Yuki Honda, and Kohtaro Kirimura*

doi:10.1246/cl.130122



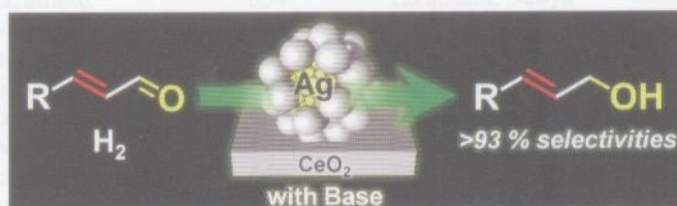
Novel low-molecular-weight gelator



660 **Remarkable Effect of Bases on Core-Shell AgNP@CeO₂ Nanocomposite-catalyzed Highly Chemoselective Reduction of Unsaturated Aldehydes**

Takato Mitsudome, Motoshi Matoba, Masaaki Yamamoto, Tomoo Mizugaki, Koichiro Jitsukawa, and Kiyotomi Kaneda*

doi:10.1246/cl.130132

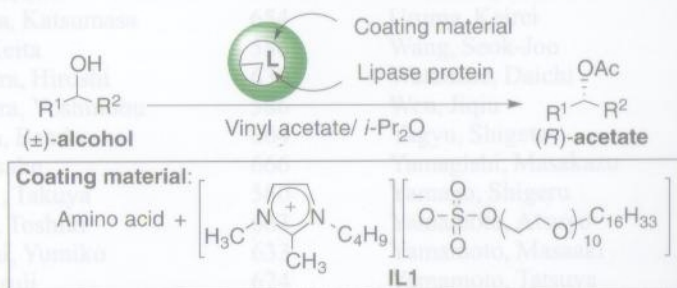


663 **Synergetic Activation of Lipase by an Amino Acid with Alkyl-PEG Sulfate Ionic Liquid**

Kazuhide Yoshiyama, Yoshikazu Abe, Shuichi Hayase, Toshiki Nokami, and Toshiyuki Itoh*

doi:10.1246/cl.130171

Electronic Supporting Information



Editor's Choice

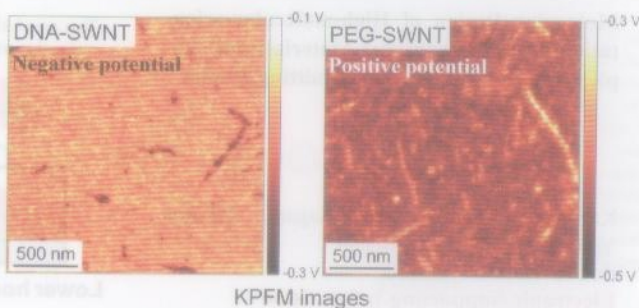
Editor's Choice

- 666 Kelvin Probe Force Microscopy of Single-walled Carbon Nanotubes Modified with DNA or Poly(ethylene glycol)

Takuya Hayashida, Takuya Kawashima, Daisuke Nii, Kazunari Ozasa, and Kazuo Umemura*

doi:10.1246/cl.130121

Electronic Supporting Information



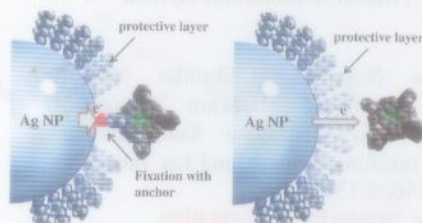
KPFM images

- 669 Suitable Location to Control Electron Transfer and Gap-mode Plasmon Interactions: Photocurrent Generation from Silver Nanoparticle-Porphyrin Composite Layers

Katsuhiko Kanaizuka,* Shigeta Yagyu, Azusa Kajikawa, Takayoshi Kakuta, Hiroki Kon, Takanari Togashi, Keirei Uruma, Manabu Ishizaki, Masatomi Sakamoto, and Masato Kurihara*

doi:10.1246/cl.130161

Two types of Ag NP-dye nanocomposite layers were prepared on an ITO electrode, where porphyrins were fixed on Ag NPs by chemical bondings through their carboxylate moieties or by hydrophobic interactions.



- 672 Effects of the 13-Keto Group in the E-Ring of Zinc Chlorophyll Derivatives on Demetalation Kinetics under Acidic Conditions

Yoshitaka Saga,* Akane Maruko, Kana Sadaoka, and Naoya Takahashi

doi:10.1246/cl.130205

Electronic Supporting Information

Removal of the 13¹-oxo group in the E-ring (X: O → H₂) significantly accelerated the demetalation reaction of chlorophyll derivatives.

