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Highlight Review

Stimuli-Responsive Synthetic Metallopeptides
*Shohei Tashiro and Mitsuhiro Shionoya**

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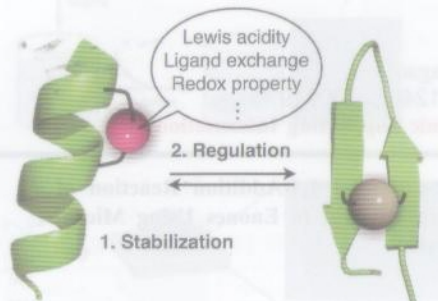
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Highlight Review

456 Stimuli-responsive Synthetic Metallopeptides

Shohei Tashiro and Mitsuhiro Shionoya*
doi:10.1246/cl.130334



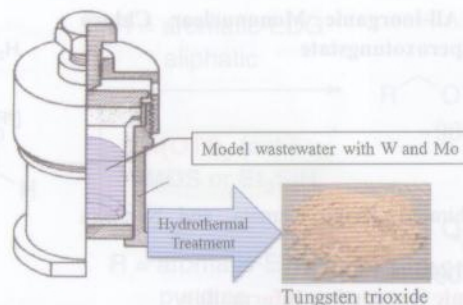
Metal ions play vital roles in stabilizing and regulating higher-order structures of biomacromolecules. This review focuses on molecular design of synthetic metallopeptides whose structures and functions are stimuli-responsive. In the cases discussed here, secondary structures of the peptides are effectively induced and regulated with the characteristics of metal ions such as Lewis acidity, ligand-exchange ability, and redox property.

Letter

463 Selective Crystallization of W by Hydrothermal Treatment of Wastewater Containing W and Mo

Ryo Sasai* and Koichiro Hirata
doi:10.1246/cl.130006

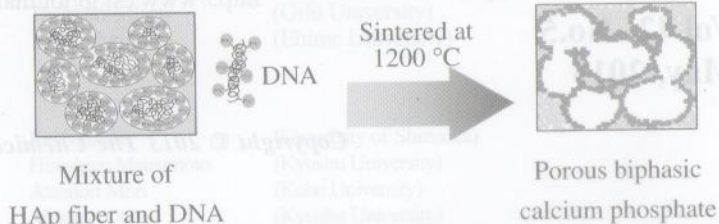
Electronic Supporting Information



465 **DNA-templated Fabrication of Biphasic Calcium Phosphate Ceramics with a Bimodal Pore Structure for Tissue Engineering**

Nami Sugiyama, Yusuke Yanagi, Masahiro Yoshizawa-Fujita, Mamoru Aizawa, Yuko Takeoka,* and Masahiro Rikukawa*
doi:10.1246/cl.130013

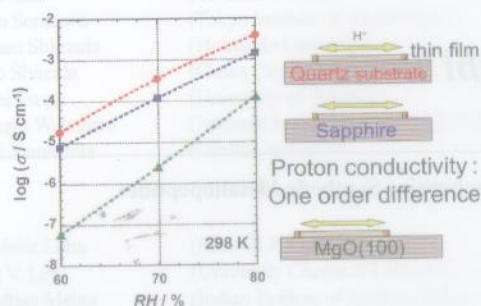
Biphasic calcium phosphate (BCP) ceramics with well-controlled pores were fabricated by sintering mixtures of synthetic hydroxyapatite (HAp) and DNA.



468 **Substrate Dependence of the Proton Transport and Oriented Structure in Oligo[(1,2-propanediamine)-*alt*-(oxalic acid)] Thin Films**

Yuki Nagao
doi:10.1246/cl.130019

Electronic Supporting Information

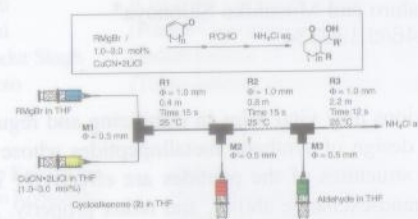


Editor's Choice

471 **Copper-catalyzed 1,4-Addition Reaction of Grignard Reagent to Enones Using Micro-flow System**

Haruo Katayama and Seiji Matsubara*
doi:10.1246/cl.130061

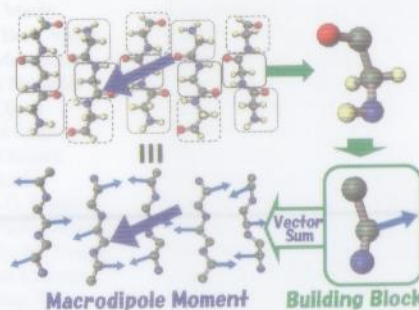
Copper-catalyzed conjugate addition of Grignard reagent to α,β -unsaturated ketone was performed in a microflow system. In the reaction using a microflow system, chemoselective 1,4-addition reaction to an enone in the presence of a saturated ketone group proceeded successfully.



473 **Macro-dipole Moment of Polypeptides in β -Sheet and Its Prediction from Dipole Moments of Amino Acid Residues as Building Blocks: Alanine and Glycine in β -Strand**

Shunsuke Mieda and Misako Aida*
doi:10.1246/cl.130084

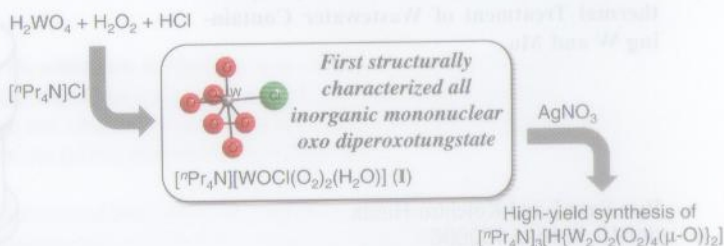
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476 **Novel All-inorganic Mononuclear Chloro Oxo Diperoxotungstate**

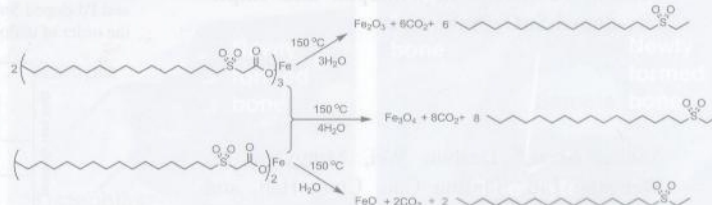
Ryo Ishimoto, Keigo Kamata, and Noritaka Mizuno*
doi:10.1246/cl.130029

Electronic Supporting Information



479 **One-pot Synthesis of Shape-controlled Fe₃O₄ Nanocrystals with Alkylsulfonylacetic Acid**

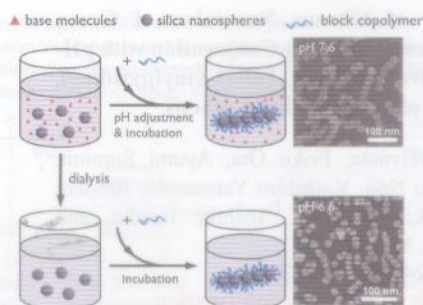
Kaihua Shen, Yanshai Wang, and Yang Li*
doi:10.1246/cl.130022



481 **Effect of Base Molecules on One-dimensional Assembly of Silica Nanospheres Mediated by a Block Copolymer**

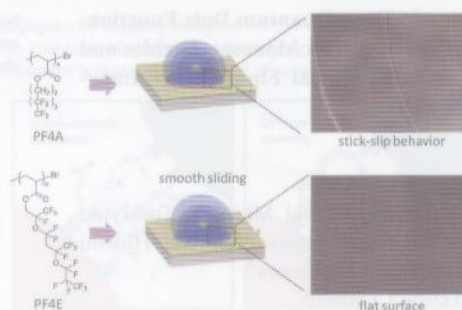
Shujun Zhou, Junzheng Wang, Ayae Sugawara-Narutaki, Atsushi Shimojima, and Tatsuya Okubo*
doi:10.1246/cl.130017

Electronic Supporting Information



483 **Water-sliding Property of Polyacrylates with Different Fluoro Side Chains**

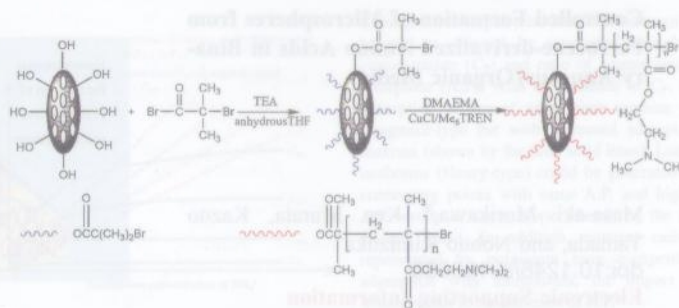
Tomoyasu Hirai, Masayuki Haraguchi, Atsushi Sakai, David P. Penaloza, Jr., Masaaki Ozawa, Katsuaki Miyaji, and Keiji Tanaka*
doi:10.1246/cl.130012



486 **Surface Modification of Hydroxy Carbonate Apatite Nanoparticles with PDMAEMA via Surface-initiated ATRP**

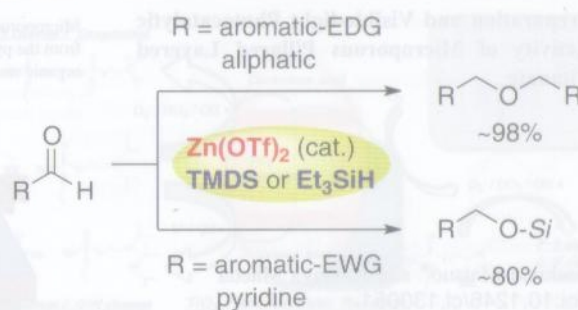
Faqi Yu, Xinde Tang, and Meishan Pei*
doi:10.1246/cl.121294

Electronic Supporting Information



489 **Zinc-catalyzed Reduction of Aldehydes with a Hydrosilane Leading to Symmetric Ethers and Silyl Ethers**

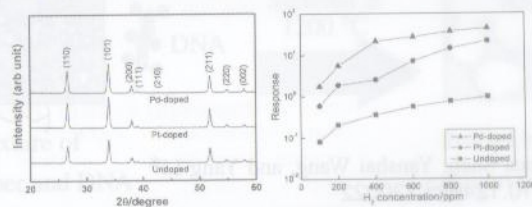
Norio Sakai,* Yoshifumi Nonomura, Reiko Ikeda, and Takeo Konakahara
doi:10.1246/cl.121297



492 **Microstructure and Room-temperature H₂ Sensing Properties of Undoped and Impurity-doped SnO₂ Nanowires**

Yanbai Shen,* Dezhou Wei, Mingyang Li, Wengang Liu, Shuling Gao, Cong Han, and Baoyu Cui
doi:10.1246/cl.130026

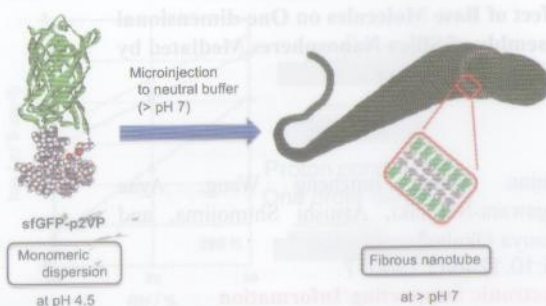
SnO₂ nanowires with a tetragonal structure were synthesized by thermal evaporation of tin grains. Microstructure and room-temperature H₂ sensing properties of undoped, Pt-doped, and Pd-doped SnO₂ nanowires were investigated. The response to H₂ gas was improved in the order of undoped < Pt-doped < Pd-doped SnO₂ nanowires under the same conditions.



495 **Creation of Fibrous Nanotubes of Green Fluorescent Protein by Conjugation with pH-Responsive Polymer, Poly(2-vinylpyridine), and Use of Microfluidic Synthesis**

Naoya Okiyama, Eriko Ota, Ayumi Sumino, Tomoyasu Noji, Katsuhiro Yamamoto, Jun-ichi Oku, Takehisa Dewa, Toshiki Tanaka, and Toshihisa Mizuno*
doi:10.1246/cl.130033

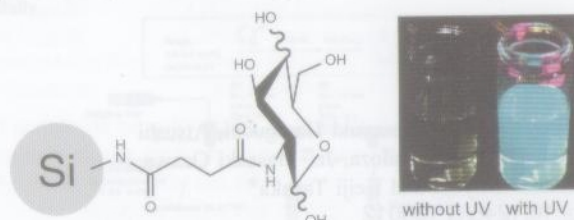
Electronic Supporting Information



498 **Synthesis of Silicon Quantum Dots Functionalized Chemically with Monosaccharides and Their Use in Biological Fluorescence Imaging**

Yoshio Nakahara, Kazuki Machiya, Toshiyuki Sato, Ni Tar Nwe, Tetsuya Furuike, Hiroshi Tamura, and Keiichi Kimura*
doi:10.1246/cl.130068

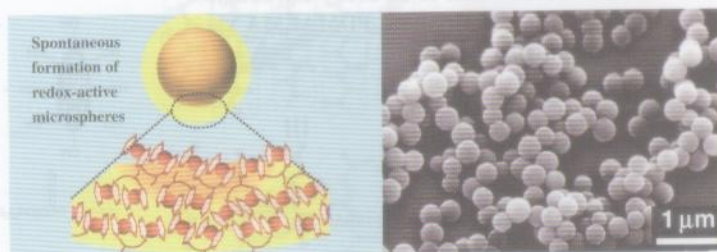
Novel water-dispersible, pH-stable, and biocompatible quantum dots were designed by surface modification of silicon quantum dots with monosaccharides, and their possibility as a blue chromophore for biological fluorescence imaging was investigated.



501 **Controlled Formation of Microspheres from Ferrocene-derivatized Amino Acids in Binary Aqueous/Organic Media**

Masa-aki Morikawa,* Ken Murata, Kazuo Yamada, and Nobuo Kimizuka*
doi:10.1246/cl.130050

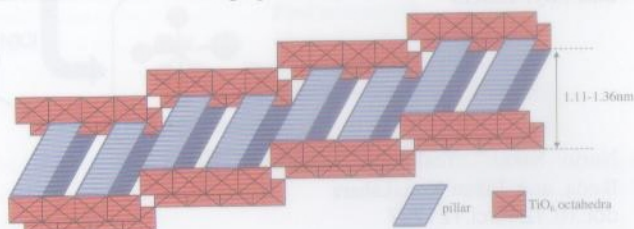
Electronic Supporting Information



504 **Preparation and Visible-light Photocatalytic Activity of Microporous Pillared Layered Titanate**

Yoshiaki Matsuo* and Katsuya Maeda
doi:10.1246/cl.130051

Microporous pillared layered titanates with large surface area of 108–230 m² g⁻¹ were prepared from the pyrolysis of silylated K₂Ti₄O₉ under various atmospheres. The sample containing some organic residues showed a visible-light photocatalytic activity toward methanol decomposition.



507 **In Vitro and In Vivo Evaluation of Hydroxyapatite Block and Granules Supported with Wheat Starch Set through the Process of Hydration under a Physiological Condition**

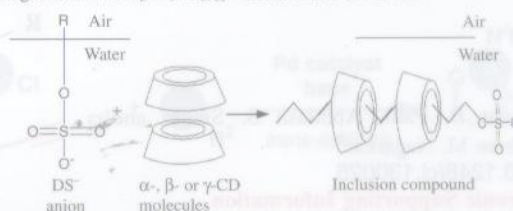
Toshitake Furusawa, Ikue Oshino, Kakeru Yoshida, Naho Oshiyama, Takahiro Kawai,* Masaaki Sato, and Toshimitsu Okudera
doi:10.1246/cl.121243



509 **Novel Interactions between $[\text{Co}(\text{NH}_3)_6](\text{ClO}_4)_3$ and Inclusion Compounds of Sodium Dodecyl Sulfate and Cyclodextrins**

Keo Vanthoeun, Kie Shimasaki, Yasuhiko Ono, Takayoshi Suzuki, and Masakazu Kita*
doi:10.1246/cl.130031

The surface tensions of aqueous SDS solution in the presence of aqueous α -, β -, and γ -CDs solution show a plateau line owing to inclusion compound as SDS-2CD. Adding $[\text{Co}(\text{NH}_3)_6]^{3+}$ to SDS and CDs inclusion compound shows the characteristic drawing of SDS from CDs which is due to strong interaction of $[\text{Co}(\text{NH}_3)_6]^{3+}$ cation with DS^- anion.

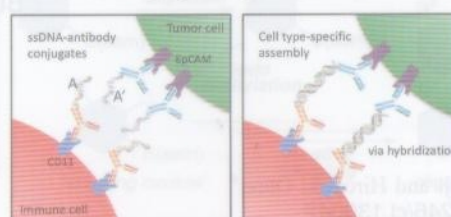


512 **Immuno-DNA-directed Assembly of Heterotypic Multicellular Systems**

Andre Shomorony and Rong Fan*
doi:10.1246/cl.130004

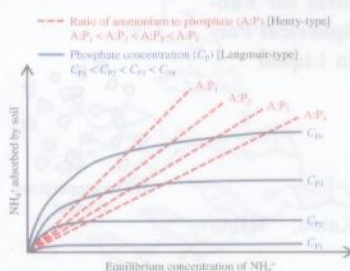
Electronic Supporting Information

Bifunctional conjugates of uniquely designed-ssDNA codes and antibodies specific to cell surface receptors enable rapid assembly of heterotypic cells into multicellular systems and potentially facilitate the bottom-up engineering of microtissues.



515 **Adsorption of Ammonium by Soil in the Presence of Phosphate during Land-treatment Process of Nutrient-enriched Wastewater**

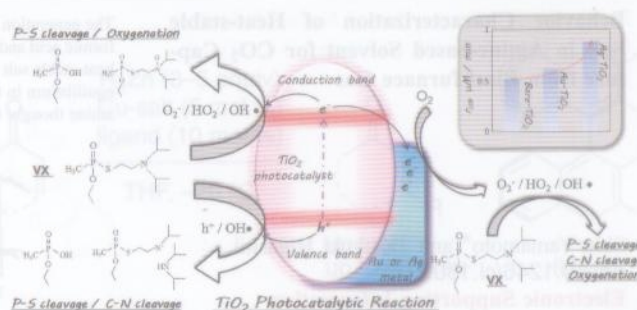
Xiaochen Chen* and Kensuke Fukushi
doi:10.1246/cl.130081



Conceptual adsorption isotherms of ammonium by soil as affected by associated phosphate concentration (C_P) and ratio of ammonium to phosphate (A:P). With the increase of C_P , the adsorption pattern of ammonium remains the Langmuir-type but with increased adsorption maxima (shown by the blue solid lines). Linear isotherms (Henry-type) could be generated by connecting points with same A:P, and higher A:P results in lower slope (shown by the red dashed lines). In addition, nutrient cations represented by potassium have competitive adsorption with ammonium, the impact of which equals to the increase of A:P.

518 **Photocatalytic Decomposition of Ethyl S-Diisopropylaminoethyl Methylphosphonothioate (VX) by Ag and Au Metal Deposited on TiO_2 in Aqueous Phase**

Shintarou Kishi, Tsutomu Hirakawa,* Keita Sato, Asuka Komano, Chifumi K. Nishimoto, Nobuaki Mera, Masahiro Kugishima, Taizo Sano, Nobuaki Negishi, Hiromichi Ichinose, Yasuo Seto, and Koji Takeuchi
doi:10.1246/cl.130015

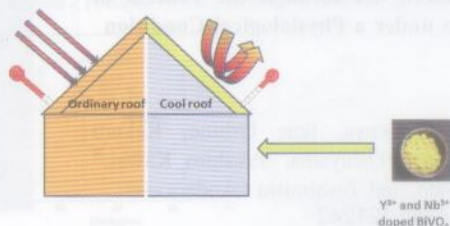


521 **Potential NIR Reflecting Yellow Pigments in $(\text{BiV})_{1-x}(\text{YNb})_x\text{O}_4$ Solid Solutions**

Saithathul Fathimah Sameera, Padala Prabhakar Rao,* Leela Sandhya Kumari, Vineetha James, and Saraswathy Divya
doi:10.1246/cl.130111

Electronic Supporting Information

New yellow pigments with high NIR reflectance based on $(\text{BiV})_{1-x}(\text{YNb})_x\text{O}_4$ system have been prepared by the conventional ceramic route. The drastic enhancement of NIR reflectance with respect to the undoped samples make them interesting candidates as cool coatings.

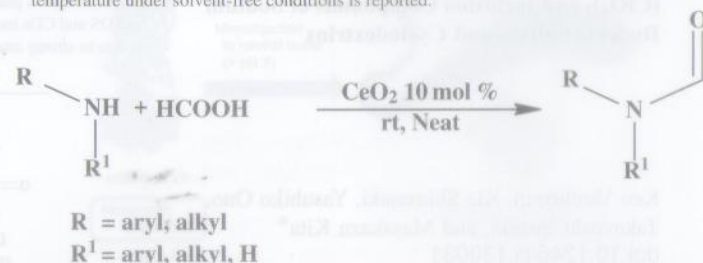


524 **Nanoceria-catalyzed Highly Efficient Procedure for *N*-Formylation of Amines at Room Temperature under Solvent-free Conditions**

Umakant B. Patil, Abhilash S. Singh, and Jayashree M. Nagarkar*
doi:10.1246/cl.130025

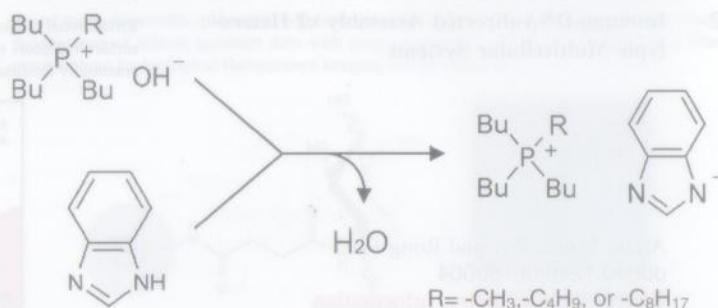
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The nanoceria-catalyzed highly efficient procedure for *N*-formylation of amines at room temperature under solvent-free conditions is reported.



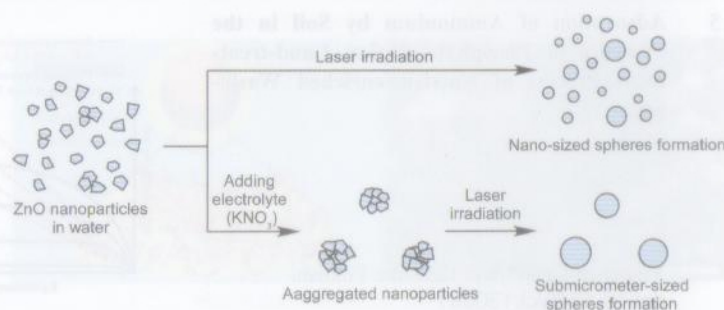
527 **Facile Synthesis of Thermally Stable Benzimidazolate-type Ionic Liquids**

Yuki Tsuji and Hiroyuki Ohno*
doi:10.1246/cl.130042



530 **Raw Particle Aggregation Control for Fabricating Submicrometer-sized Spherical Particles by Pulsed-laser Melting in Liquid**

Yoshie Ishikawa,* Yukiko Katou, Naoto Koshizaki, and Qi Feng
doi:10.1246/cl.130044

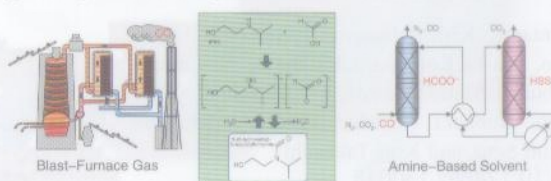


532 **Behavior Characterization of Heat-stable Salt in Amine-based Solvent for CO_2 Capture from Blast-furnace Gas**

Shin Yamamoto* and Takayuki Higashii
doi:10.1246/cl.130037

Electronic Supporting Information

The generation behavior and the molecular structure of a heat-stable salt arising from reaction of formic acid and an amine component contained in a chemical CO_2 solvent have been studied. The heat-stable salt is thought to be generated in a reversible endothermic reaction and reach reaction equilibrium in the amine solution. The heat-stable salt has been proven to be formamide of the amine thought to be generated in a dehydration reaction of ammonium formate.

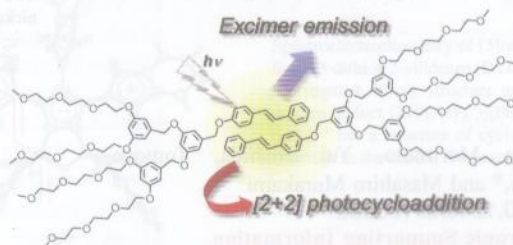


- 535 **Photochemical Characteristics of Amphiphilic Stilbene Dendrimers Induced by Aggregate Formation at Very Low Concentration**

Kayoko Kataoka and Tatsuo Arai*
doi:10.1246/cl.130098

[Electronic Supporting Information](#)

An amphiphilic stilbene dendrimer forms molecular assemblies in neutral water exhibiting excimer fluorescence and undergoes cycloaddition even in highly diluted solution of 10^{-6} M.

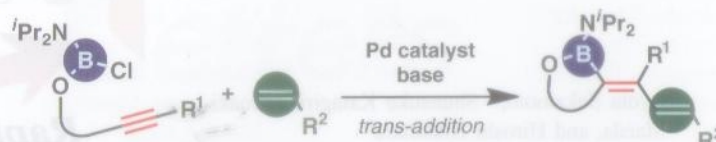


- 538 **Palladium-catalyzed Carboboration: Borylative Coupling of Alkynes with Alkenes through Activation of Boron–Chlorine Bonds**

Kanayo Nakada, Masaki Daini, and Michinori Suginome*
doi:10.1246/cl.130131

[Electronic Supporting Information](#)

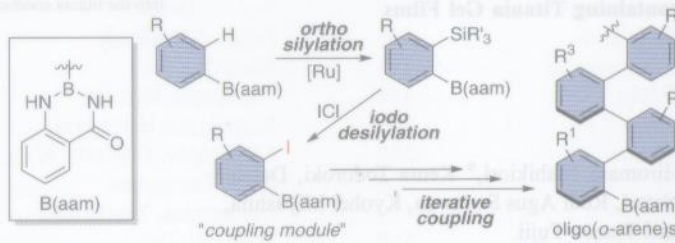
Alkynes tethered to a chloro(diisopropylamino)boryl group undergo palladium-catalyzed borylative coupling with styrenes and acrylates, giving substituted cyclic 1,3-dienylboronic acid derivatives in a stereoselective fashion.



- 541 **Anthranilamide-masked *o*-Iodoarylboronic Acids as Coupling Modules for Iterative Synthesis of *ortho*-Linked Oligoarenes**

Masashi Koyanagi, Nils Eichenauer, Hideki Ihara, Takeshi Yamamoto, and Michinori Suginome*
doi:10.1246/cl.130136

[Electronic Supporting Information](#)

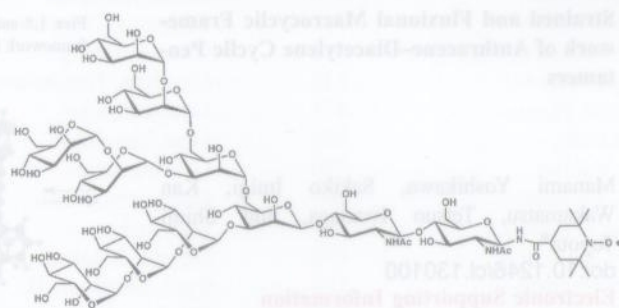


Editor's Choice

- 544 **Terminal Spin Labeling of a High-mannose-type Oligosaccharide for Quantitative NMR Analysis of Its Dynamic Conformation**

Takumi Yamaguchi, Yukiko Kamiya, Yeun-Mun Choo, Sayoko Yamamoto, and Koichi Kato*
doi:10.1246/cl.130040

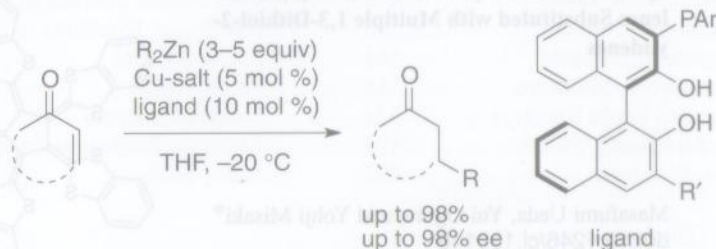
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- 547 **Functionalized BINOL-*mono*-PHOS for Multinuclear Cu-Catalysts in Asymmetric Conjugate Addition of Organozinc Reagents**

Kohei Endo,* Sayuri Yakeishi, Daisuke Hamada, and Takanori Shibata*
doi:10.1246/cl.130080

[Electronic Supporting Information](#)

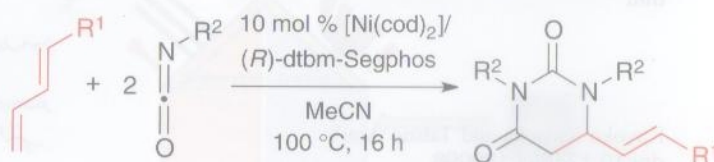


550 **Nickel-catalyzed [2 + 2 + 2] Cycloaddition Reaction of Isocyanates with 1,3-Dienes**

Two molecules of an isocyanate react with one molecule of a 1,3-diene in the presence of a nickel(0) catalyst to give a 6-substituted dihydropyrimidine-2,4-dione.

Masao Morimoto, Yui Nishida, Tomoya Miura,* and Masahiro Murakami*
doi:10.1246/cl.130082

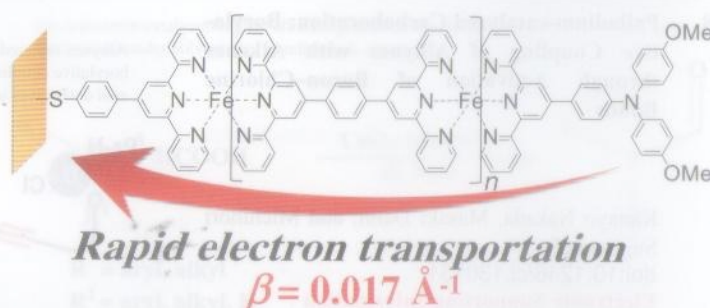
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553 **Triarylamine-conjugated Bis(terpyridine)-Iron(II) Complex Wires: Rapid and Long-range Electron-transport Ability**

Ryota Sakamoto,* Shunsuke Katagiri, Hiroaki Maeda, and Hiroshi Nishihara*
doi:10.1246/cl.130083

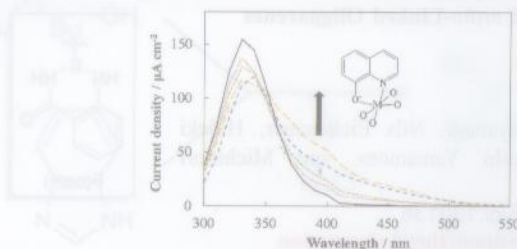
[Electronic Supporting Information](#)



556 **Complex Formation in 8-Hydroxyquinoline-containing Titania Gel Films**

A photocurrent was observed due to the electron injection from the excited state of the complex into the titania conduction band.

Hiromasa Nishikiori,* Kenta Todoroki, Daichi Natori, Rudi Agus Setiawan, Kyohei Miyashita, and Tsuneo Fujii
doi:10.1246/cl.130089

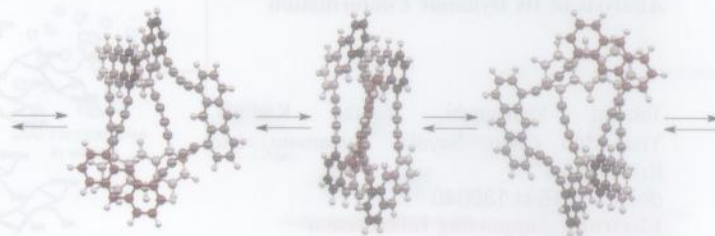


559 **Strained and Fluxional Macrocyclic Framework of Anthracene-Diacetylene Cyclic Pentamers**

Five 1,8-anthrylene units and five diacetylene linkers form a strained and fluxional cyclic framework in which each anthracene surface moves rapidly around all possible orientations.

Manami Yoshikawa, Sakiko Imigi, Kan Wakamatsu, Tetsuo Iwanaga, and Shinji Toyota*
doi:10.1246/cl.130100

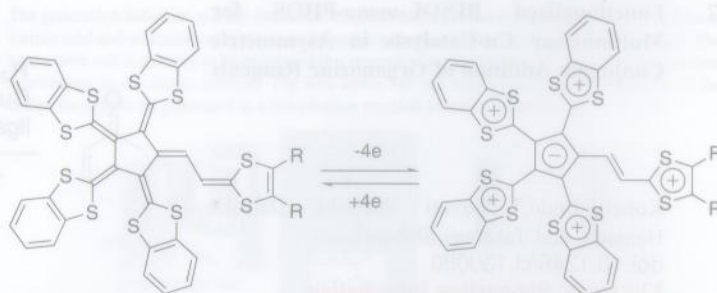
[Electronic Supporting Information](#)



562 **Synthesis and Properties of Novel [5]Radialenes Substituted with Multiple 1,3-Dithiol-2-ylidenes**

Masafumi Ueda, Yui Ogura, and Yohji Misaki*
doi:10.1246/cl.130140

[Electronic Supporting Information](#)

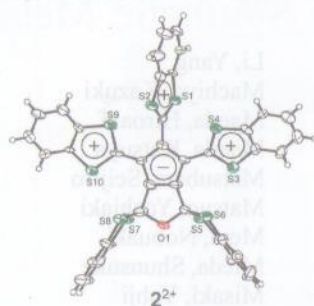


565 Oxidation States of [5]Radialene with Five 1,3-Dithiol-2-ylidenes and Its Oxygen Adduct

Masafumi Ueda, Takashi Shirahata, and Yohji Misaki*

doi:10.1246/cl.130142

Electronic Supporting Information



Spectroelectrochemistry of [5]radialenes with five 1,3-dithiol-2-ylidenes (DTs) (1) has been investigated. X-ray structure analysis of an oxygen adduct (2)²⁺(AsF₆)₂(PhCl)_{1.5} reveals that 2²⁺ has a structure of cyclopentadienide structure in the central five-membered ring.