昭和47年2月15日　第3種郵便物認可　平成25年5月5日発行(毎月5日発行)通巻497号　ISSN 0366-7022

Chemistry Letters

Highlight Review

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

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Vol. 42 No. 5 2013
CMLTAG 455-568 (2013)
MAY 5, 2013

The Chemical Society of Japan

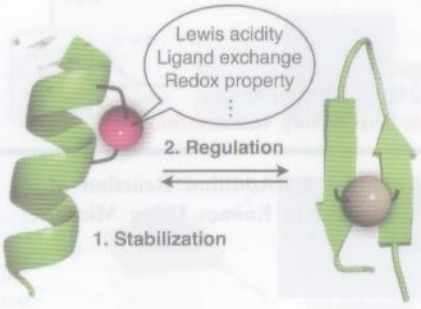
Chemistry Letters

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

Vol.42 No.5
May, 2013

CMLTAG
ISSN 0366-7022

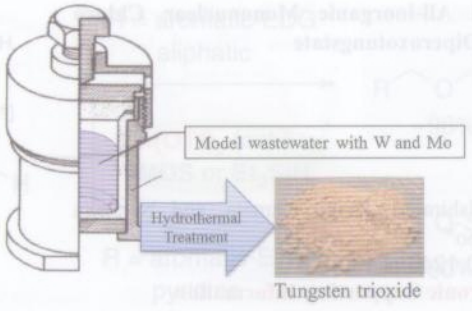
Highlight Review



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

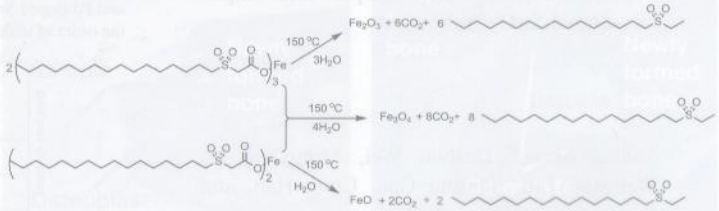
Metal ions play vital roles in stabilizing and regulating higher-order structures of biomacromolecules. This review focuses on molecular design of synthetic metallopeptides whose structures and functions are stimuli-responsive. In the cases discussed here, secondary structures of the peptides are effectively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

Letter



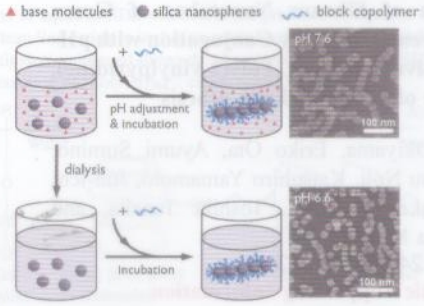
Ryo Sasai* and Koichiro Hirata
doi:10.1246/cl.130006
Electronic Supporting Information

479 **One-pot Synthesis of Shape-controlled Fe_3O_4 Nanocrystals with Alkylsulfonylacetic Acid**



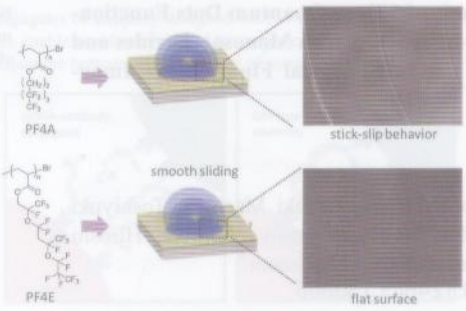
Kaihua Shen, Yanshai Wang, and Yang Li*
doi:10.1246/cl.130022

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



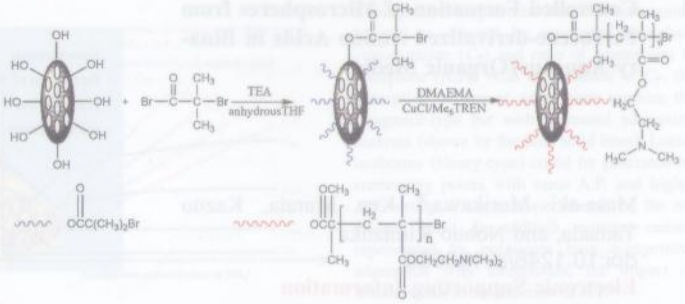
Shujun Zhou, Junzheng Wang, Ayae Sugawara-Narutaki, Atsushi Shimojima, and Tatsuya Okubo*
doi:10.1246/cl.130017
Electronic Supporting Information

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



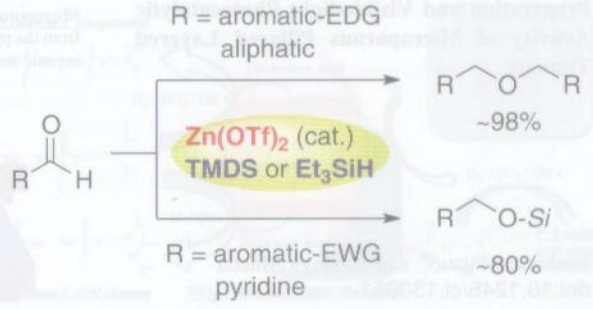
Tomoyasu Hirai, Masayuki Haraguchi, Atsushi Sakai, David P. Penaloza, Jr., Masaaki Ozawa, Katsuaki Miyaji, and Keiji Tanaka*
doi:10.1246/cl.130012

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**

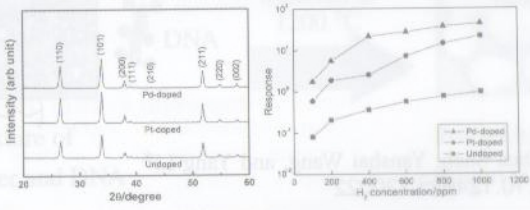


Norio Sakai,* Yoshifumi Nonomura, Reiko Ikeda, and Takeo Konakahara
doi:10.1246/cl.121297

492 **Microstructure and Room-temperature H_2 Sensing Properties of Undoped and Impurity-doped SnO_2 Nanowires**

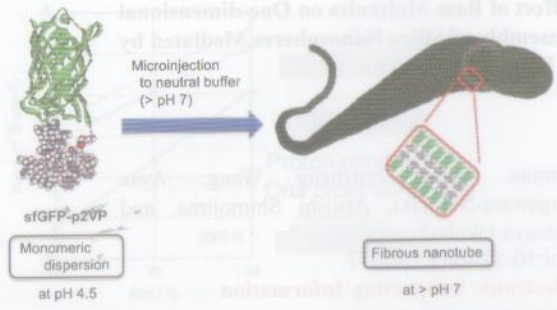
Yanbai Shen,* Dezhou Wei, Mingyang Li, Wengang Liu, Shuling Gao, Cong Han, and Baoyu Cui
doi:10.1246/cl.130026

SnO_2 nanowires with a tetragonal structure were synthesized by thermal evaporation of tin grains. Microstructure and room-tempertature H_2 sensing properties of undoped, Pt-doped, and Pd-doped SnO_2 nanowires were investigated. The response to H_2 gas was improved in the order of undoped < Pt-doped < Pd-doped SnO_2 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**

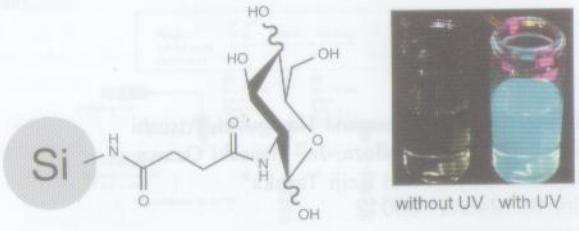
Naoya Okiyama, Eriko Ota, Ayumi Sumino, Tomoyasu Noji, Katsuhiro Yamamoto, Jun-ichi Oku, Takehisa Dewa, Toshiki Tanaka, and Toshihisa Mizuno*
doi:10.1246/cl.130033
Electronic Supporting Information



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

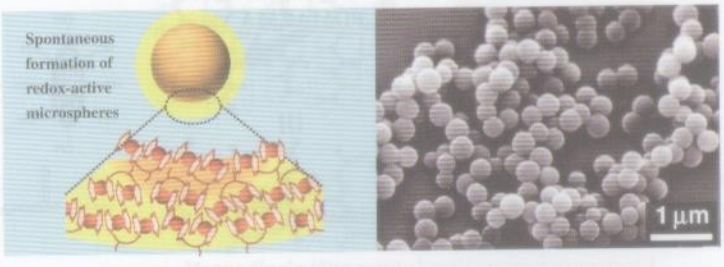
Yoshio Nakahara, Kazuki Machiya, Toshiyuki Sato, Ni Tar Nwe, Tetsuya Furuike, Hiroshi Tamura, and Keiichi Kimura*
doi:10.1246/cl.130068

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**

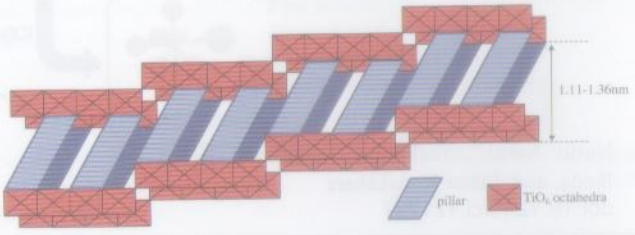
Masa-aki Morikawa,* Ken Murata, Kazuo Yamada, and Nobuo Kimizuka*
doi:10.1246/cl.130050
Electronic Supporting Information



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

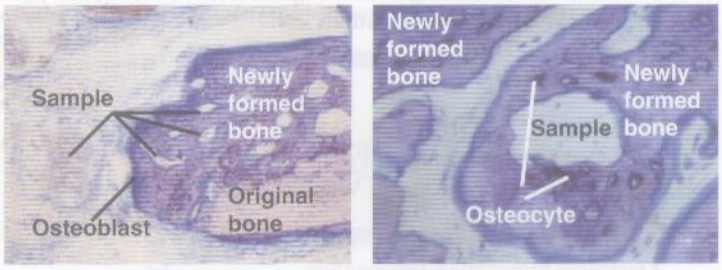
Yoshiaki Matsuo* and Katsuya Maeda
doi:10.1246/cl.130051

Microporous pillared layered titanates with large surface area of 108–230 $m^2 g^{-1}$ were prepared from the pyrolysis of silylated $K_2Ti_4O_9$ 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**

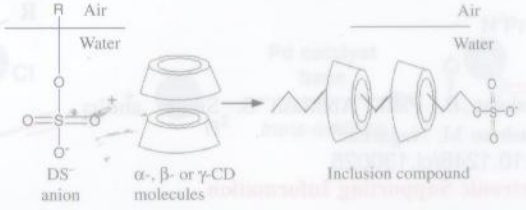
Toshitake Furusawa, Ikue Oshino, Kakeru Yoshida, Naho Oshiyama, Takahiro Kawai,* Masaaki Sato, and Toshimitsu Okudera
doi:10.1246/cl.121243



509 **Novel Interactions between $[Co(NH_3)_6]$-$(ClO_4)_3$ 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

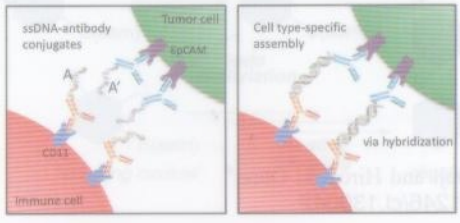
The surface tensions of aqueous SDS solution in the presence of aqueous α-, β-, and γ-CDs solution show a plateau line owing to inclusion compound as SDS–2CD. Adding $[Co(NH_3)_6]^{3+}$ to SDS and CDs inclusion compound shows the characteristic drawing of SDS from CDs which is due to strong interaction of $[Co(NH_3)_6]^{3+}$ cation with DS^- anion.



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

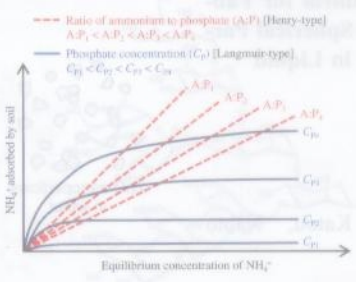
Andre Shomorony and Rong Fan*
doi:10.1246/cl.130004
Electronic Supporting Information

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**

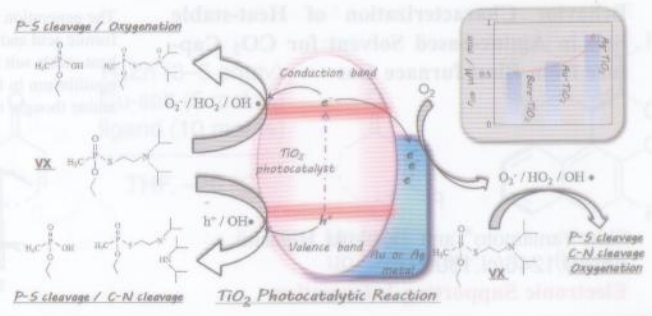
Xiaochen Chen* and Kensuke Fukushi
doi:10.1246/cl.130081



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**

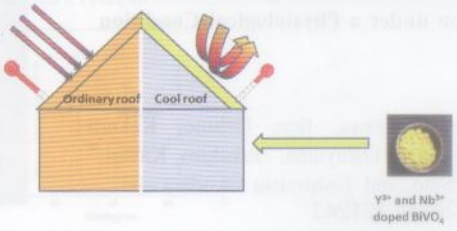
Shintarou Kishi, Tsutomu Hirakawa,* Keita Sato, Asuka Komano, Chifumi K. Nishimoto, Nobuaki Mera, Masahiro Kugishima, Taizo Sano, Nobuaki Negishi, Hiromichi Ichinose, Yasuo Seto, and Koji Takeuchi
doi:10.1246/cl.130015



521 **Potential NIR Reflecting Yellow Pigments in $(BiV)_{1-x}(YNb)_xO_4$ Solid Solutions**

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

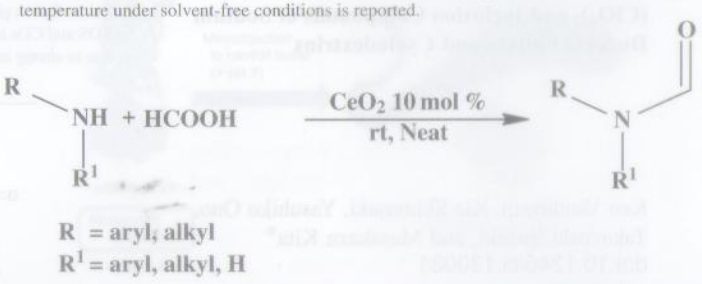
New yellow pigments with high NIR reflectance based on $(BiV)_{1-x}(YNb)_xO_4$ system have been prepared by the conventional ceramic route. The drastic enhancement of NIR reflectance with respect to the undoped samples make them interesting candidates as cool coatings.



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

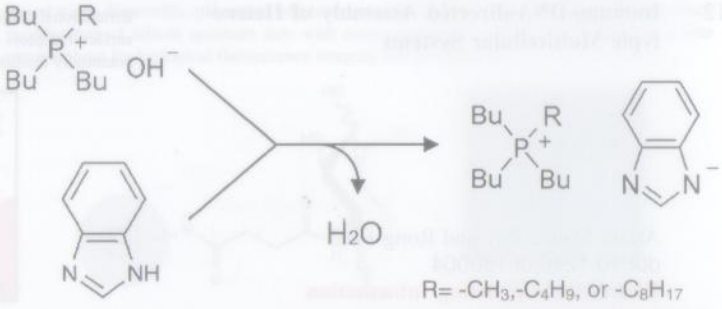
Umakant B. Patil, Abhilash S. Singh, and Jayashree M. Nagarkar*
doi:10.1246/cl.130025
Electronic Supporting Information

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



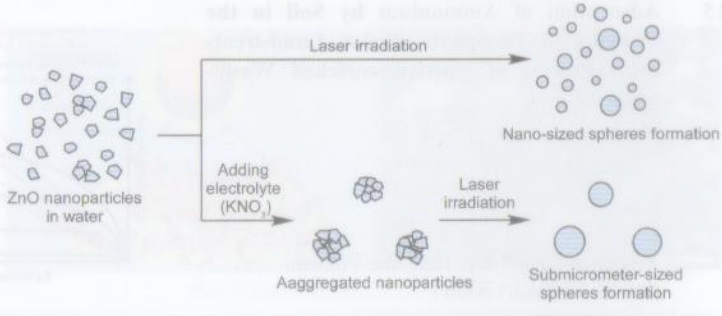
527 **Facile Synthesis of Thermally Stable Benzimidazolate-type Ionic Liquids**

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**

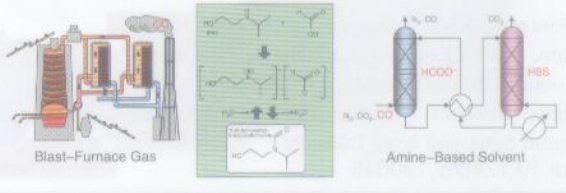
Yoshie Ishikawa,* Yukiko Katou, Naoto Koshizaki, and Qi Feng
doi:10.1246/cl.130044



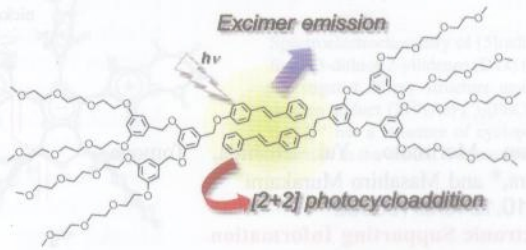
532 **Behavior Characterization of Heat-stable Salt in Amine-based Solvent for CO_2 Capture from Blast-furnace Gas**

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

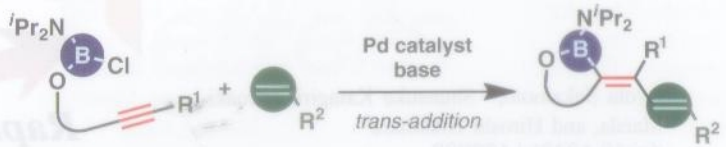
The generation behavior and the molecular structure of a heat-stable salt arising from reaction of formic acid and an amine component contained in a chemical CO_2 solvent have been studied. The heat-stable salt is thought to be generated in a reversible endothermic reaction and reach reaction equilibrium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



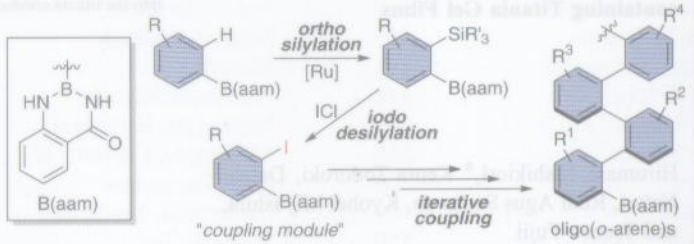
An amphiphilic stilbene dendrimer forms molecular assemblies in neutral water excibiting excimer fluorescence and undergoes cycloaddition even in highly diluted solution of 10^{-6} M.

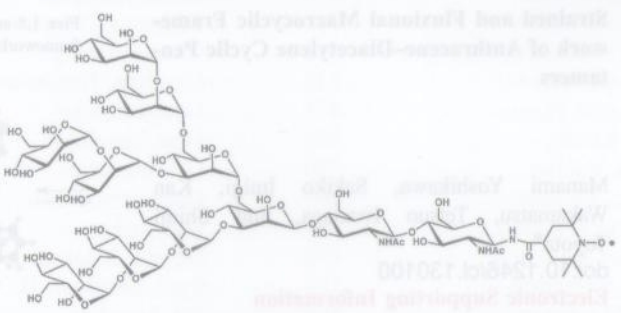


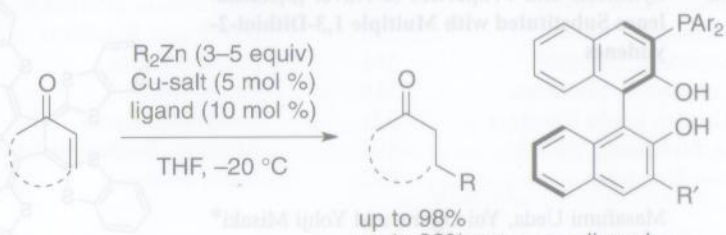
Alkynes tethered to a chloro(diisopropylamino)boryl group undergo palladium-catalyzed borylative coupling with styrenes and acrylates, giving substituted cyclic 1,3-dienylboronic acid derivatives in a stereoselective fashion.



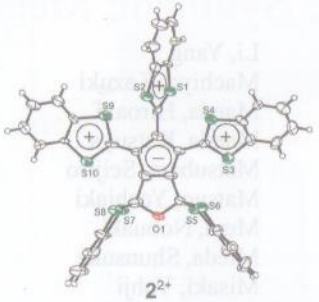
Editor's Choice







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



2^{2+}

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 $(\mathbf{2})^{2+}(AsF_6^-)_2(PhCl)_{1.5}$ reveals that $\mathbf{2}^{2+}$ has a structure of cyclopentadienide structure in the central five-membered ring.