Highlight Review

532 Random Dispersion of Metal Nanoparticles Can Form a Laser Cavity

Shunsuke Murai, Koji Fujita,* Xiangeng Meng, and Katsuhisa Tanaka*
doi:10.1246/cl.2010.532

Metal nanoparticles are efficient scatterers for light at around the frequency of localized surface plasmon resonance. By randomly dispersing such strong scatterers into a gain material, a laser system is prepared where multiple scattering plays a role of optical cavity. This type of laser is called random laser and has been developed using dielectric scatterers. This article highlights the application of metal nanoparticles to the random laser and examines the advantages of the metallic scatterers compared to the dielectric scatterers.

Letter

538 Organic Transistors Based on Octamethylenetetrathiafulvalenes

Jun-ichi Inoue, Masato Kanno, Minoru Ashizawa, Chayeon Seo, Akihiko Tanioka, and Takehiko Morigdoi:10.1246/cl.2010.538

Organic field-effect transistors (OFET) based on octamethylenetetrathiafulvalene (OMTTF) and the t-butyl derivative are investigated. The parent OMTTF shows poor transistor performance owing to the flat molecular arrangement, but the t-butyl substitution realizes standing molecular arrangement and high OFET performance. The tetracyanoquinodimethane (TCNQ) complex of OMTTF exhibits n-channel properties despite the strong donor ability of OMTTF.

Electronic Supporting Information
541 Theoretical Analysis of Phase Diagrams and Mixing Heats of Systems of Ketone/1-Alcohol

Takuma Seki,* Ryo Nakajima, and Motosuke Naoki
doi:10.1246/cl.2010.541

The theory based on the hydrogen-bond configuration has been expanded. The largely positive mixing heats and the crystal-liquid phase diagrams of systems of ketone/1-alcohol were well reproduced by the theory. The analysis revealed the hydrogen-bond characteristics of the systems.

544 Electrochemical Capacitor Properties of NiO in Ionic Liquids

Sho Makino, Yoshio Takasu, and Wataru Sugimoto*
doi:10.1246/cl.2010.544
Electronic Supporting Information

NiO nanoparticle electrode behaves as a nearly ideally polarizable electrode in ionic liquids. 1-Ethyl-3-methylimidazolium tetrafluoroborate (EMI-BF4) allows a 3 V potential window with an energy density of 150 kJ kg\(^{-1}\), 20 times higher than 1 M KOH electrolyte.

546 Selective Oxidation of Hydrazides Using \(o\)-Iodoxybenzoic Acid to Carboxylic Acids, Esters, and Aldehydes

Balaram S. Takale and Vikas N. Telvekar*
doi:10.1246/cl.2010.546
Electronic Supporting Information

548 One-pot Preparation of Antioxidized Copper Fine Particles with a Unique Structure by Chemical Reduction at Room Temperature

Tetsu Yonezawa,* Naoki Nishida, and Atsushi Hyono
doi:10.1246/cl.2010.548

550 Magnetorheology of Poly(vinyl alcohol) Magnetic Gels with High Mechanical Toughness

Keisuke Negami and Tetsu Mitsumata*
doi:10.1246/cl.2010.550
Preparation and Characterization of Polydopamine-coated Silver Core/Shell Nano-cables

Min Zhang, Xihao Zhang, Xiwen He, Langxing Chen,* and Yukui Zhang*
doi:10.1246/cl.2010.552
Electronic Supporting Information

Upright Structuring of Functional Carboxylate Anchored on Benzoate/Cu(110) Molecular Template Studied by Scanning Tunneling Microscopy

Satoshi Katano, Masafumi Hori, Caroline Rabot, Yousoo Kim, and Maki Kawai*
doi:10.1246/cl.2010.554

Noncovalent Assembly of TEMPO Radicals Pair-wise Embedded on a DNA Duplex

Hiroshi Atsumi, Kensuke Maekawa, Shigeaki Nakazawa, Daisuke Shiomi, Kazunobu Sato, Masahiro Kitagawa, Takeji Takui, and Kazuhiko Nakatani*
doi:10.1246/cl.2010.556

Rhodium-catalyzed Dehydroborylation of Styrenes with Naphthalene-1,8-diaminato-borane (dan)BH: New Synthesis of Masked β-Borylstyrenes as New Phenylene-Vinylene Cross-coupling Modules

Noriyuki Iwadate and Michinori Suginome*
doi:10.1246/cl.2010.558
Electronic Supporting Information

Pulsed-laser Irradiation of Carbonaceous Materials in AgNO₃ Solution and Its Application to Preparing Silver-activated Carbon Electrodes

Seiichiro Koda,* Yoshiko Miura, Akira Endo, Hiroshi Uchida, and Kiyoshi Iritani
doi:10.1246/cl.2010.561
Electronic Supporting Information

The two mismatch binding ligands cooperatively bound to the CGG/CGG triad and an apparent binding constant was in the order of 10⁶ M⁻¹. The tumbling of the ligand on a DNA duplex was ten times slower than that of the unbound ligand.

Cross-coupling modules for phenylene-vinylene building units, bearing two distinctive coupling sites including a masked boronyl group, have been prepared by dehydroborylation of styrene derivatives with (dan)BH in the presence of a catalytic amount of a cationic rhodium complex.

Glassy carbon electrode was irradiated by pulsed laser in AgNO₃ solution to be Ag-activated (surface image; see TEM). The O₂ reduction potential by DPV (bold line) showed anodic shift indicated by the arrow from that without any irradiation (dotted line).
564 Detection of the Heterochirality of a 1:2 Metal/Ph-pybox Complex Ion by ESIMS

Hirofumi Sato,* Yoshitomo Suzuki, Yoshih Takai, Hideya Kawasaki, Ryuichi Arakawa, and Motohiro Shizuma
doi:10.1246/cl.2010.564
Electronic Supporting Information

567 Kinetic Analysis of Reduction of Formyl Groups in Chlorophyll d and Pheophytin d

Kana Sadaoka, Yuki Hirai, Shigenori Kashimura, and Yoshitaka Saga*
doi:10.1246/cl.2010.567

570 A Novel Protein Gel Route to Synthesize Luminescent Lu3Al5O12:Ce3+ Powders Calcined at Lower Temperature

Dao Yu,* Qingfeng Liu, and Qian Liu*
doi:10.1246/cl.2010.570

572 Metallocenium Ionic Liquids

Takashi Inagaki and Tomoyuki Mochida*
doi:10.1246/cl.2010.572
Electronic Supporting Information

574 Extraordinary Effect of Microwave Irradiation on Asymmetric Catalysis

Satoshi Kikuchi, Tatsuyuki Tsubo, Tomoko Ashizawa, and Tohru Yamada*
doi:10.1246/cl.2010.574
Electronic Supporting Information
576 Amino Acid Spin Labels. An Application of Chelation Ability to a Nickel(II) Ion

Sayaka Osada, Kazuki Igarashi, Takashi Nogami, and Takayuki Ishida*
doi:10.1246/cl.2010.576

578 Thermodynamic Study of the Solvation States of Acid and Base in a Protic Ionic Liquid, Ethylammonium Nitrate, and Its Aqueous Mixtures

Ryo Kanzaki,* Xuedan Song, Yasuhiro Umebayashi, and Shin-ichi Ishiguro
doi:10.1246/cl.2010.578

580 Aspects of the Nonlinear Optical Properties as a Guide to Protonation Sites: A Theoretical Study upon α-Keggin [SiW_{12}O_{40}]^{4-} and [SiV_{3}W_{9}O_{40}]^{7-}

Chan Yao, Chun-Guang Liu, Li-Kai Yan, Wei Guan, Ping Song, and Zhong-Min Su*
doi:10.1246/cl.2010.580
Electronic Supporting Information

582 Pure Branch Effect on the Optical Properties of Novel Conjugated Derivatives

Long Yang, Fang Gao,* Jian Liu, Xiaolin Zhong, Hongru Li,* and Shengtao Zhang
doi:10.1246/cl.2010.582
Electronic Supporting Information

584 Synthesis of Hollow Silica Nanospheres Templated by Micelles of Poly(styrene-b-[3-(methacryloylamino)propyl]trimethylammo-nium chloride-b-ethylene oxide)

Jingjing Liu, Dian Liu, Sasidharan Manickam, Yuuichi Yokoyama, Shin-ichi Yusa, and Kenichi Nakashima*
doi:10.1246/cl.2010.584
Electronic Supporting Information
586 Solid-state Solvatochromic Behavior of Reichardt’s Dye Crystals Hybridized with Silica Nanoparticles

Kunihiro Ichimura,* Akira Funabiki, and Ken’ichi Aoki  
doi:10.1246/cl.2010.586

588 Facile Fabrication and Magnetic Properties of Macroporous Spinel Microspheres from Layered Double Hydroxide Microsphere Precursor

Fazhi Zhang,* Yaru Xie, Sailong Xu, Xiaofei Zhao, and Xiaodong Lei  
doi:10.1246/cl.2010.588
Electronic Supporting Information

591 One-step Conversion of CO$_3^{2-}$–LDH (Layered Double Hydroxide) into Anion-exchangeable LDHs Using an Acetate-buffer/Salt Method

Nobuo Iyi* and Hirohisa Yamada  
doi:10.1246/cl.2010.591
Electronic Supporting Information

594 Room Temperature Ferromagnetism at the Interface between Nonmagnetic Semiconductors

Yuka Yazaki, Masayuki Suda, Naoto Kameyama, and Yasuaki Einaga*  
doi:10.1246/cl.2010.594
Electronic Supporting Information

596 Dinohydrazides A and B, Novel Hydrazides from a Symbiotic Marine Dinoflagellate

Norihito Maru, Osamu Ohno, Kaoru Yamada, and Daisuke Uemura*  
doi:10.1246/cl.2010.596

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598 A Notable Difference in Photoluminescent Efficiency between a Newly Synthesized Asymmetric Dinuclear Cu(I) Cyano Complex Building Unit [Cu2(CN)6]3− and a Symmetric Unit [Cu2(CN)5]3−

New cyanide-bridged Cu(I/II) coordination polymers which contain an asymmetric [Cu2(CN)6]3− or a symmetric [Cu2(CN)5]3− building unit were synthesized and showed contrastive photoluminescent behavior.

Junta Fuchiwaki and Shin-ichi Nishikiori* doi:10.1246/cl.2010.598
Electronic Supporting Information

601 Novel Multinuclear NiI(Au)2 and NiI(Au)3 Complexes Containing D-Penicillamine and Bis(diphenylphosphino)methane: Rational Expansion of 8-Membered to 12-Membered Chelating Metalloring

Yuji Hashimoto, Kiyoshi Tsuge, and Takumi Konno* doi:10.1246/cl.2010.601
Electronic Supporting Information

604 A New Type of Red-emitting (La,Ca)-OCl:Eu3+ Phosphors

Red-emitting phosphors, (La,Ca)OCl:Eu3+ have been synthesized in a single-phase form by a liquid-phase method. The red emission intensity was successfully enhanced by the Ca2+ doping into the LaOCl:Eu3+ lattice.

Sun Woog Kim, Kazuya Jyoko, Toshiyuki Masui, and Nobuhi Imanaka* doi:10.1246/cl.2010.604

607 Stereochemical Structure Determination of Caffeine Complexes with Galloylated and Non-galloylated Catechins

Takashi Ishizu,* Takashi Sato, Hiroyuki Tsutsumi, and Hideji Yamamoto doi:10.1246/cl.2010.607

610 Surface Thiolation of MCMB to Support Sn Nanoparticles for Anode Materials of Lithium Ion Batteries

Yong-Tae Kim doi:10.1246/cl.2010.610

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612 Synthesis, Structure, and Properties of a Dinaphthoazaborine

Tomohiro Agou, Hiroki Arai, and Takayuki Kawashima*
doi:10.1246/cl.2010.612
Electronic Supporting Information

614 Mixing of Molecular Crystals by Dry Cogrinding with Silica Nanoparticles

Kunihiro Ichimura
doi:10.1246/cl.2010.614
Electronic Supporting Information

616 Fabrication of 3-nm Platinum Wires Using a Tobacco Mosaic Virus Template

Mime Kobayashi, Katsuya Onodera, Yuichiro Watanabe, and Ichiro Yamashita*
doi:10.1246/cl.2010.616
Electronic Supporting Information

619 Immobilization of ZnS–AgInS2 Solid Solution Nanoparticles on ZnO Rod Array Electrodes and Their Photoresponse with Visible Light Irradiation

Tetsuya Sasamura, Ken-ichi Okazaki, Ryuta Tsunoda, Akihiko Kudo, Susumu Kuwabata, and Tsukasa Torimoto*
doi:10.1246/cl.2010.619
Electronic Supporting Information

622 A Short and Efficient Total Synthesis of (±)-Ascofuranone

Yasushi Haga, Takayuki Tono, Yoshihide Anbiru, Yuki Takahashi, Sayuri Tamura, Masaichi Yamamoto, Shinsuke Ifuku, Minoru Morimoto, and Hiroyuki Saimoto*
doi:10.1246/cl.2010.622
Electronic Supporting Information
624 A Vanadium-based Chemical Oscillator

Kan Kanamori,* Yuya Shiroseka, Yukie Sakai, Toshiki Kanamori, Yusuo Mukai, Kenji Kubo, Yu Nakajima, Naoki Wada, Seiichi Matsugo, Yoshitaro Miyashita, and Kenneth Kustin

doi:10.1246/cl.2010.624
Electronic Supporting Information

627 Photocatalytic Degradation of 2-Propanol under Irradiation of Visible Light by Nano-crystalline Titanium(IV) Oxide Modified with Rhodium Ion Using Adsorption Method

Sho Kitano, Keiji Hashimoto, and Hiroshi Kominnami*

doi:10.1246/cl.2010.627
Electronic Supporting Information

630 Total Synthesis of Furanether B. Construction of a Hydroazulene Skeleton via a Novel [5 + 2] Cycloaddition Reaction of Silyloxy-allene

Katsuhiko Mitachi, Takashi Yamamoto, Fumikatsu Kondo, Tadashi Shimizu, Masaaki Miyashita, and Keiji Tanino*

doi:10.1246/cl.2010.630

633 Excited Triplet State of a UV-B Absorber, Octyl Methoxycinnamate

The phosphorescence spectrum of OMC was observed by using external heavy atom effects.

Azusa Kikuchi,* Shinsuke Yukimaru, Nozomi Oguchi, Kazuyuki Miyazawa, and Mikio Yagi*

doi:10.1246/cl.2010.633

636 Preparation of Semiconducting Graphene-based Carbon Films from Silylated Graphite Oxide and Covalent Attachment of Dye Molecules

Yoshiaki Matsuo,* Taito Mimura, and Yoshioo Sugie

doi:10.1246/cl.2010.636
Electronic Supporting Information
638 Fabrication and Photochromism of High-density Diarylethene Monolayer Immobilized on a Quartz-glass Substrate

Diarylethene monolayer was fabricated on a quartz-glass substrate using a silane coupling agent with a diarylethene moiety. The chromophore still exhibited reversible photochromism with relatively high efficiency in spite of the constrained environment. The coverage of the coupling agent on the quartz-glass surface was estimated to be 1.5 molecules per square nanometer.

Hiroyasu Nishi and Seiya Kobatake*
doi:10.1246/cl.2010.638
Electronic Supporting Information

640 J-Aggregation of Zinc 3',13'-Dihydroxychlorins by Exclusive Coordination Bonding between 3'-Hydroxy Group and Central Zinc Atom

Synthetic zinc 3',13'-dihydroxylated chlorin formed J-aggregates in nonpolar organic solvent, similar to natural self-aggregative chlorosomal bacteriochlorophylls, by exclusive intermolecular coordination bonding between 3'-OH and Zn, not by using 13'-OH.

Michio Kunieda and Hitoshi Tamiaki*
doi:10.1246/cl.2010.640

643 Axially Chiral Anilido–Aldimine Aluminum Complexes with a Pseudobinaphthyl Skeleton

Kazuhiro Hayashi, Yumiko Nakajima, Fumiyuki Ozawa, and Takeo Kawabata*
doi:10.1246/cl.2010.643
Electronic Supporting Information

646 Optical Resolution of Chiral Buckybowls by Chiral HPLC

Optical resolution of chiral buckybowls was achieved by chiral HPLC. The enantiomers of racemic trimethylsumanenetrione were separated, and the bowl inversion energy barrier was determined by the CD spectra.

Ryoji Tsuruoka, Shuhei Higashibayashi, Takeharu Ishikawa, Shinji Toyota, and Hidehiro Sakurai*
doi:10.1246/cl.2010.646
Electronic Supporting Information

648 Reaction of Thiochamphor with Disulfur Dichloride: Novel Formation of α-Disulfine

Reaction of thiocamphor with disulfur dichloride afforded six- and seven-membered tricyclic polysulfanes, which were oxidized by m-CPBA to afford bicyclic (E,E)-disulfine stereoselectively. Reaction of α-disulfine with Lawesson reagent afforded tetrasulfane in 70% yield.

Kentaro Okuma,* Toshiaki Tsubota, Miki Tabuchi, Masayuki Kanto, Noriyoshi Nagahora, Kosei Shioji, and Yoshinobu Yokomori
doi:10.1246/cl.2010.648
A New Pyridyloxadiazole Incorporated Acridone Offering Selective Optical Detection of Fluoride

Sabir H. Mashraqui,* Sapna Tripathi, Rupesh Betkar, and Mukesh Chandiramani
doi:10.1246/cl.2010.650
Electronic Supporting Information

Silver Oxide as a Novel Catalyst for Carbon–Carbon Bond-forming Reactions in Aqueous Media

Masaharu Ueno, Arata Tanoue, and Shū Kobayashi* 
doi:10.1246/cl.2010.652
Electronic Supporting Information

Photostability of Water-dispersible CdTe Quantum Dots: Capping Ligands and Oxygen

Saim Emin, Alexandre Loukanov, Masanobu Wakasa, Seiichiro Nakabayashi,* and Yasuko Kaneko 
doi:10.1246/cl.2010.654
Electronic Supporting Information