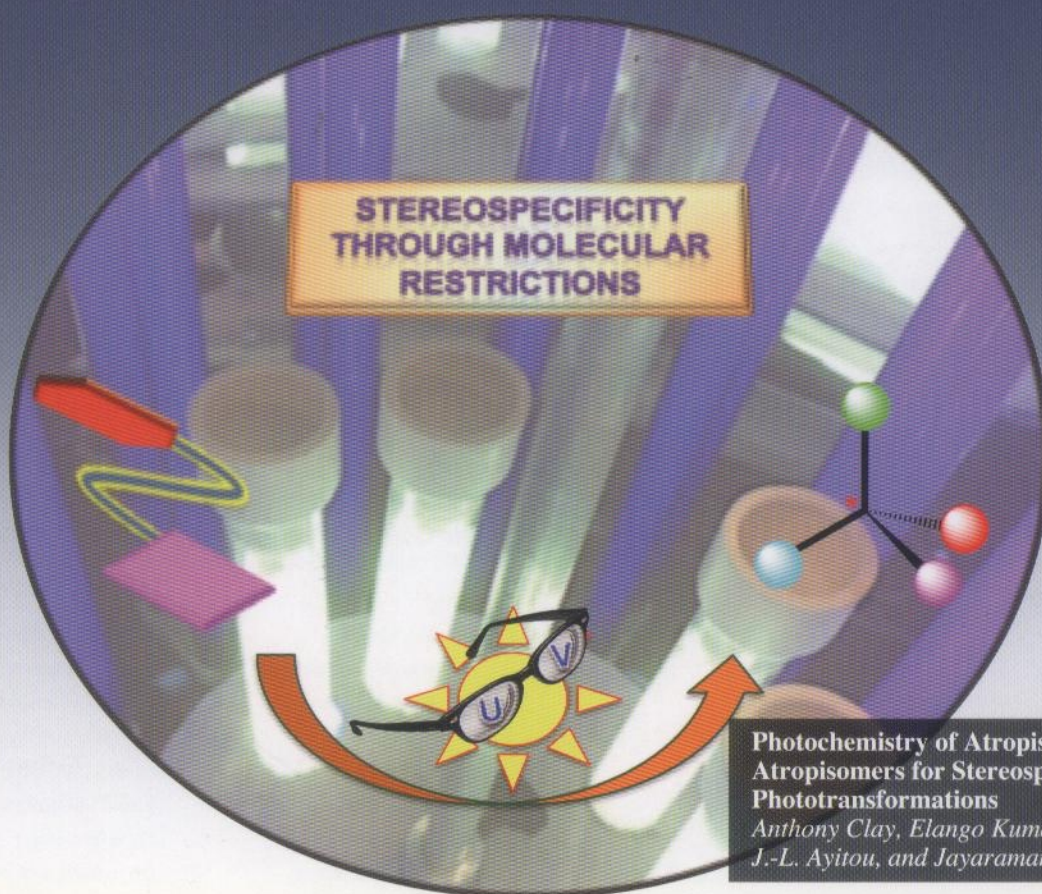


# Chemistry Letters



**Photochemistry of Atropisomers: Non-biaryl Atropisomers for Stereospecific Phototransformations**  
*Anthony Clay, Elango Kumarasamy, Anoklase J.-L. Ayitou, and Jayaraman Sivaguru\**

**Vol. 43 No. 12 2014**

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1815-1946 (2014)

DECEMBER 5, 2014

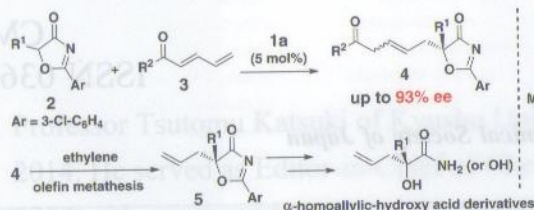


**The Chemical Society of Japan**



# 1,6-Addition Reaction of 5*H*-Oxazol-4-ones to Conjugated Dienones Catalyzed by Chiral Guanidines

Akane Morita, Tomonori Misaki,\* and Takashi Sugimura\*

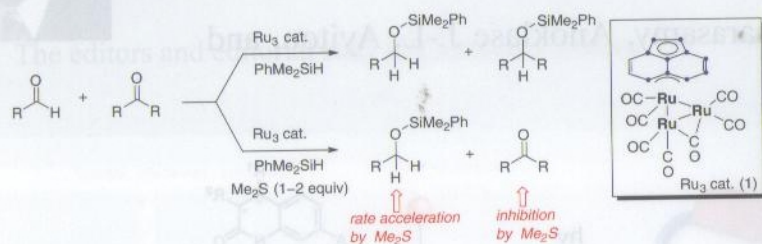


A chiral guanidine-catalyzed 1,6-addition reaction of 5*H*-oxazol-4-ones to  $\alpha,\beta,\gamma,\delta$ -unsaturated ketones is described in this study. The addition reaction proceeded regioselectively to yield a 1,6-addition product with high enantioselectivity. Obtained adducts of the 1,6-addition can be converted into corresponding chiral 7-oxo- $\alpha$ -hydroxy acid derivatives, or chiral  $\alpha$ -homoallylic-hydroxy acid derivatives via Grubbs catalyst 2nd generation-mediated olefin metatheses.

Chem. Lett. 2014, 43 1826–1828 doi:10.1246/cl.140713

# Me<sub>2</sub>S-induced Highly Selective Reduction of Aldehydes in the Presence of Ketones Involving Aldehyde-selective Rate Enhancement: A Triruthenium Cluster-catalyzed Hydrosilylation

Shohei Yumino, Toru Hashimoto, Atsushi Tahara, and Hideo Nagashima\*

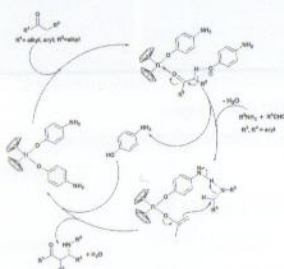


Highly selective reduction of aldehydes in the presence of ketones was achieved by addition of appropriate amounts of Me<sub>2</sub>S catalyzed by [Ru<sub>3</sub>(CO)<sub>7</sub>(Acy)] (1, Acy:  $\mu_3$ - $\eta^2,\eta^3,\eta^5$ -acenaphthylene), in which the reduction of aldehydes was unusually accelerated, whereas that of ketones was completely suppressed. A new mechanism for selective reduction of aldehydes is proposed.

Chem. Lett. 2014, 43 1829–1831 doi:10.1246/cl.140731

# Cooperative Catalysis of *p*-Aminophenol and Titanocene Dichloride in Direct Mannich Reactions with Acetone

Xuyang Zhu, Chun Chen, Binxun Yu, Guofang Zhang, Weiqiang Zhang,\* and Ziwei Gao\*

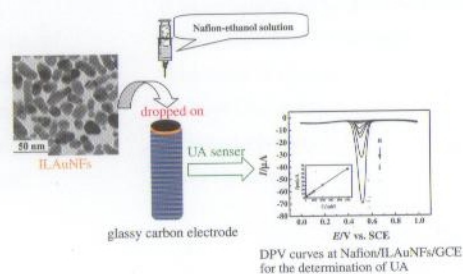


A new binary acid system featuring an air-stable organometallic precursor, titanocene dichloride and simple Brønsted acid–base compound, was developed. The new catalyst system allowed for mild and highly efficient direct three-component Mannich reactions of both aryl ketones and alkyl ketones, particularly acetone and its derivatives with excellent yields. Mechanism study elucidated the dramatic synergistic effect of the new binary acid system.

Chem. Lett. 2014, 43 1832–1834 doi:10.1246/cl.140705

# Application of Ionic Liquid-based Nanofluids Containing Gold Nanoparticles in an Electrochemical Sensor for Uric Acid

Sufang Ding,\* Xue Lü, Jie Liu, and Ranran Xü



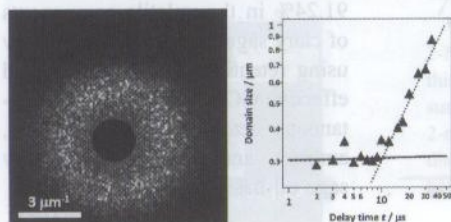
Under ultrasonic dispersing, an ionic liquid-based nanofluid was prepared by extraction–reduction method. A new electrochemical sensor for detecting uric acid (UA) was fabricated by immobilizing the ionic liquid-based nanofluids containing gold nanoparticles on a glassy carbon electrode surface. This sensor exhibits good selectivity, reproducibility, and sensitivity for the direct determination of UA in real human urine samples.

Chem. Lett. 2014, 43 1835–1837 doi:10.1246/cl.140636



### Mesoscopic Dynamics of Laser-induced Phase Separation in Water and 2-Butoxyethanol Mixtures Revealed by Nanosecond Time-resolved Light Scattering

Shuichi Toyouchi, Shinji Kajimoto, Masatoshi Toda, Toshihiro Kawakatsu, Yohji Akama, Motoko Kotani, and Hiroshi Fukumura\*

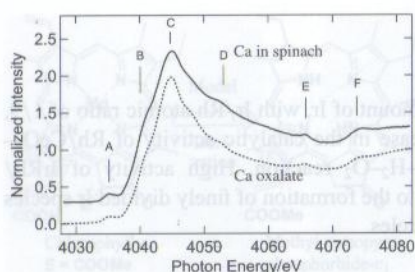


We have investigated laser-induced phase-separation dynamics by using light scattering and obtained a light-scattering image (left). From scattering images at various delay times, it was found that the domain sizes were almost constant at 300 nm for 10  $\mu$ s after a laser T-jump (right). The results clearly indicate that the early stage of the laser-induced phase separation in the water/2-butoxyethanol mixture lasted for 10  $\mu$ s.

Chem. Lett. 2014, 43 1838–1840 doi:10.1246/cl.140698

### Direct Evidence of Calcium Oxalate Formation in Spinach

Hitoshi Abe



An X-ray absorption fine structure (XAFS) study is performed to examine the chemical form of Ca in spinach. The spectra obtained by XAFS measurements show the direct evidence that Ca exists in the chemical form of calcium oxalate in spinach, which is an insoluble salt. This result can explain the low bioavailability of Ca in spinach. The bioavailability is discussed from the viewpoint of the solubility of calcium oxalate in a stomach.

Chem. Lett. 2014, 43 1841–1842 doi:10.1246/cl.140726

### Preparation of Carbon Nanofibers by Hydrogenation of Carbon Dioxide on a Nickel Sponge Catalyst

Naijin Wu, Baoshan Li,\* and Jie Zhang

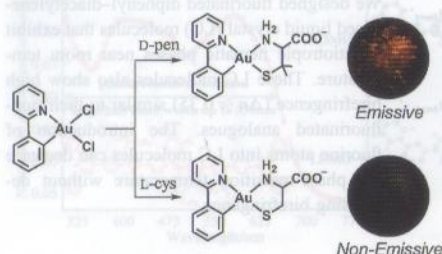


A novel method for preparing carbon nanofibers via catalytic hydrogenation of CO<sub>2</sub> on nickel sponge catalyst at 773 K and atmospheric pressure was reported. The drop of the pressure on nickel sponge catalyst was small which revealed that it could save on energy for the preparation of the carbon nanofibers. The diameter of products was less than 200 nm.

Chem. Lett. 2014, 43 1843–1845 doi:10.1246/cl.140702

### A Drastic Difference in Photoluminescent Behavior between Cysteinato and Penicillaminato Gold(III) Complexes with a Phenylpyridinato Ligand

Naoto Kuwamura, Kouhei Hayashida, Kiyoshi Tsuge, Nobuto Yoshinari, and Takumi Konno\*



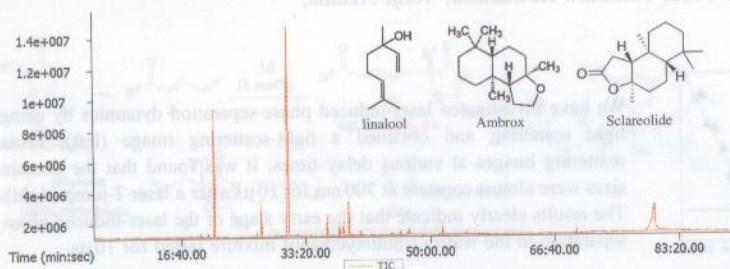
Square-planar gold(III) complexes with a *cis*(*N*)-CN<sub>2</sub>S geometry, [Au(ppy)(D-pen-*N,S*)] and [Au(ppy)(L-cys-*N,S*)] (Hppy: 2-phenylpyridine, D-H<sub>2</sub>pen: D-penicillamine, L-H<sub>2</sub>cys: L-cysteine), were synthesized and structurally characterized. While the L-cys complex was nonemissive, the D-pen complex exhibited an orange emission in the solid state.

Chem. Lett. 2014, 43 1846–1848 doi:10.1246/cl.140797



# Simultaneous Determination of Linalool, Ambrox, and Sclareolide in Clary Sage Oil by GC-MS

Yang-Bin Xu, Kai Wang,\* Rui-Zhi Zhu, Wei Zhe, and Zhi-Yu Li

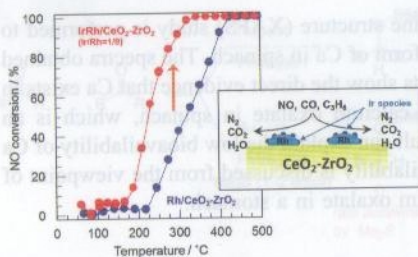


32 compounds, which account for 91.24% in the volatile components of clary sage oil, were confirmed by using retention index. A rapid and effective GC-MS method for simultaneous determination of linalool, ambrox, and sclareolide in clary sage oil has been developed.

Chem. Lett. 2014, 43 1849–1851 doi:10.1246/cl.140724

# Bimetallic IrRh/CeO<sub>2</sub>-ZrO<sub>2</sub> as a Highly Active Catalyst for NO-CO-C<sub>3</sub>H<sub>6</sub>-H<sub>2</sub>-O<sub>2</sub> Reactions under Stoichiometric Conditions

Masaaki Haneda,\* Takahiro Kaneko, Naoto Kamiuchi, and Masakuni Ozawa

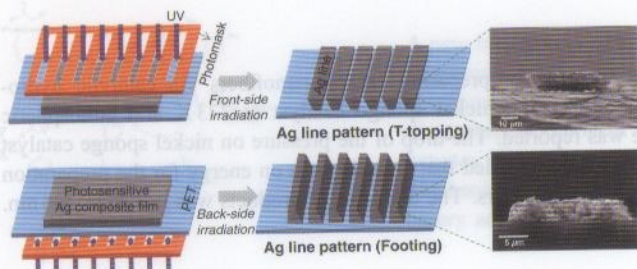


The addition of a small amount of Ir, with Ir/Rh atomic ratio of 1/9, caused a significant increase in the catalytic activity of Rh/CeO<sub>2</sub>-ZrO<sub>2</sub> for NO-CO-C<sub>3</sub>H<sub>6</sub>-H<sub>2</sub>-O<sub>2</sub> reaction. High activity of IrRh/CeO<sub>2</sub>-ZrO<sub>2</sub> was ascribed to the formation of finely divided Ir species on the surface of Rh particles.

Chem. Lett. 2014, 43 1852–1854 doi:10.1246/cl.140840

# Preparation of Sub-20-μm Conductive Silver Pattern Using Photosensitive Silver Paste

Suk-Joon Kim, Jang Mi Lee, Won-Jin Lee, Sungtae Kim, Chan Pil Park,\* Byoungnam Park,\* and Insik In\*

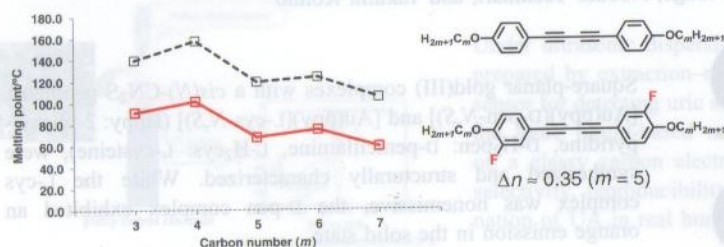


Preparation of conductive silver line pattern for the generation of narrow bezel electrode through front- or back-side irradiation of ultraviolet.

Chem. Lett. 2014, 43 1855–1857 doi:10.1246/cl.140630

# Synthesis, Phase-transition Behaviors, and Birefringence Properties of Fluorinated Diphenyl-Diacetylene Derivatives

Yuki Arakawa, Sungmin Kang,\* Junji Watanabe, and Gen-ichi Konishi\*



We designed fluorinated diphenyl-diacetylene-based liquid crystal (LC) molecules that exhibit enantiotropic nematic phases near room temperature. These LC molecules also show high birefringence ( $\Delta n \approx 0.35$ ) similar to their non-fluorinated analogues. The introduction of fluorine atoms into LC molecules can decrease the phase-transition temperature without decreasing birefringence.

Chem. Lett. 2014, 43 1858–1860 doi:10.1246/cl.140779



### Structures of Naphthol-AOT Self-assembly Organogels and Their Applications to Dispersing Media of Rare-earth Complexes

Shotaro Katsube, Takashi Harada, Tatsuya Umecky, Toshiyuki Takamuku, Toshihiko Kaji, Masahiro Hiramoto, Yukiteru Katsumoto, and Katsura Nishiyama\*

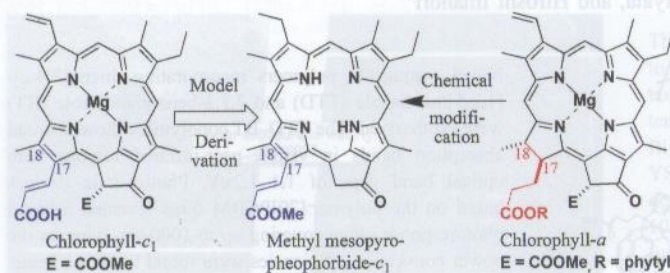


2-Naphthol and AOT form organogel in nonpolar solvents by self-assembly. In this organogel 2-naphthol has a stacked structure, and the exterior of which is surrounded by AOT. This gel emits blue light under UV excitation due to the 2-naphthol framework. When a  $\text{Eu}^{3+}$  complex exhibiting orange emission is dispersed, pinkish-white emission is observed according to an additive color-tuning between the gel and the complex.

Chem. Lett. 2014, 43 1861–1863 doi:10.1246/cl.140766

### Transformation of Natural Chlorophyll-*a* into Chlorophyll-*c* Analogs Possessing the 17-Acrylate Residue

Meiyun Xu and Hitoshi Tamiaki\*

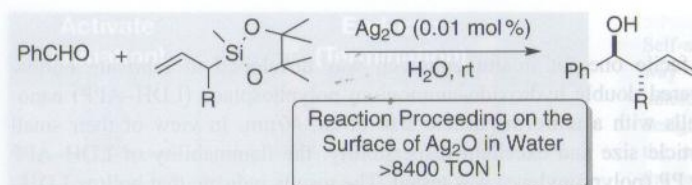


Chlorophyll(Chl)-*a* derivatives possessing  $\text{C18H-C17H-CH}_2\text{-CH}_2$  were transformed to Chl-*c* analogs possessing  $\text{C18=C17-CH=CH}$  through dehydrogenation to  $\text{C18=C17}$ , dihydroxylation to  $\text{C18(OH)-C17(OH)}$ , and double dehydration. This is the first report on the synthesis of the latter porphyrin-acrylate conjugates by modifying natural chlorin-propionate, Chl-*a*.

Chem. Lett. 2014, 43 1864–1866 doi:10.1246/cl.140798

### Catalytic Organic Reactions on the Surface of Silver(I) Oxide in Water

Masaharu Ueno, Arata Tanoue, and Shū Kobayashi\*



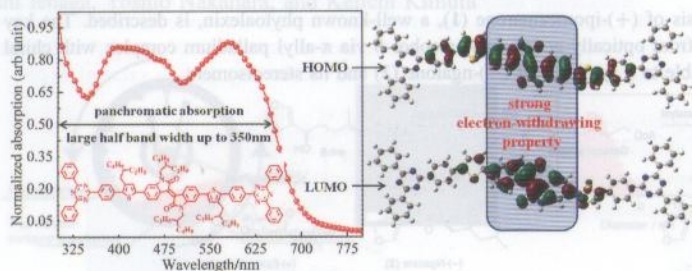
We have developed  $\text{Ag}_2\text{O}$ -catalyzed allylation reactions of aldehydes with allylsilanes in water. The reaction proceeded in high yields with high *anti*-selectivities. We found a quite interesting phenomenon that the reaction proceeded only on the surface of  $\text{Ag}_2\text{O}$ . We could reduce the catalyst amount to less than 0.01 mol%. Moreover, an asymmetric allylation reaction was also performed in high yield with moderate enantioselectivity by using a chiral phosphine derivative as a ligand.

Chem. Lett. 2014, 43 1867–1869 doi:10.1246/cl.140818

Editor's Choice

### Novel Panchromatic Absorption Material, Isoindigo-based A- $\pi$ -A- $\pi$ -A Small Molecule

Qian Liu, Zhengkun Du, Meng Qiu, Liang Sun, Wei Liu, Weichao Chen, Mingliang Sun,\* and Renqiang Yang\*



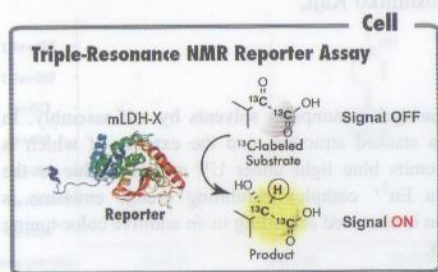
A small molecule with the structure of A- $\pi$ -A- $\pi$ -A was synthesized which exhibited panchromatic absorption spectra between 300 and 720 nm with absorption peak around 582 nm in thin solid film. Density functional theory (DFT) calculations indicated that the electron density was mainly delocalized over the central isoindigo and thiophene units.

Chem. Lett. 2014, 43 1870–1872 doi:10.1246/cl.140781



### Design of Triple-resonance NMR Reporter Assay

Tatsuya Nishihara, Hiroshi Nonaka, and Shinsuke Sando\*

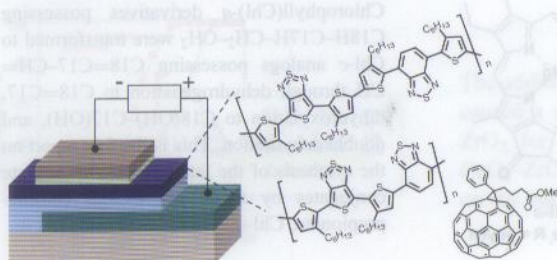


Mouse lactate dehydrogenase-X (mLDH-X) was designed as a triple-resonance NMR reporter protein. The mLDH-X catalyzes the conversion of a  $^{13}\text{C}$ -labeled pyruvic acid derivative (substrate) to a lactic acid derivative (product), which can be detected selectively by 1D  $^1\text{H}$ -( $^{13}\text{C}$ - $^{13}\text{C}'$ ) triple-resonance NMR. The expression of mLDH-X fused protein was successfully detected by monitoring the signal of the product.

Chem. Lett. 2014, 43 1873–1875 doi:10.1246/cl.140804

### Synthesis of Thienothiadiazo–Benzothiadiazo Alternating Copolymers and Their Application to Bulk Heterojunction Solar Cells

Tomokazu Umeyama, Yusuke Watanabe, Tetsushi Miyata, and Hiroshi Imahori\*

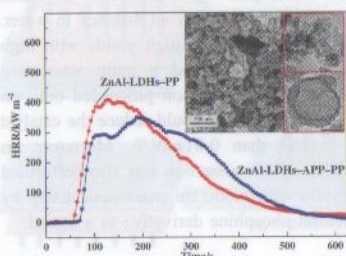


Novel conjugated polymers incorporating thieno[3,4-c]-[1,2,5]thiadiazole (TTD) and 2,1,3-benzothiadiazo (BT) were synthesized. The TTD–BT copolymers showed broad absorption bands in visible–near-infrared regions with optical band gaps of 1.1–1.2 eV. Photovoltaic devices based on the polymer:[70]PCBM films revealed a broad photoresponse range covering up to 1000 nm, whereas the power conversion efficiencies were found to be moderate.

Chem. Lett. 2014, 43 1876–1878 doi:10.1246/cl.140822

### One-pot In Situ Synthesis of Hollow Layered Double Hydroxide–Ammonium Polyphosphate Nanoshells toward Flame Retardant

Zhangcheng Li, Zhonghua Xue, Baojun Yang,\* Bainian Wang, and Xinhua Peng



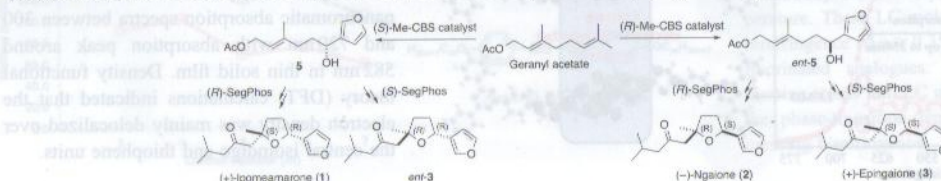
A facile one-pot in situ approach was developed to fabricate hollow layered double hydroxide–ammonium polyphosphate (LDH–APP) nanoshells with a uniform particle size of ca. 40 nm. In view of their small particle size and excellent dispersibility, the flammability of LDH–APP for PP (polypropylene) was tested. The results indicate that hollow LDH–APP nanoshells can be considered as a very promising flame retardant.

Chem. Lett. 2014, 43 1879–1881 doi:10.1246/cl.140786

### A New Concise Synthesis of (+)-Ipomeamarone, (–)-Ngaione, and Their Stereoisomers

Yoshinosuke Usuki,\* Taku Deguchi, and Hideo Iio

A new concise and enantiocontrolled total synthesis of (+)-ipomeamarone (1), a well-known phytoalexin, is described. The key step involved a tetrahydrofuran ring construction from optically active furyl alcohol 5 via  $\pi$ -allyl palladium complex with chiral phosphine ligand. This procedure was also applicable to a synthesis of (–)-ngaione (2) and its stereoisomers.



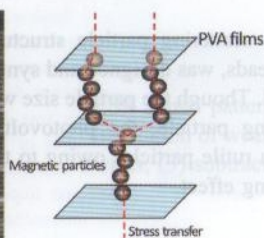
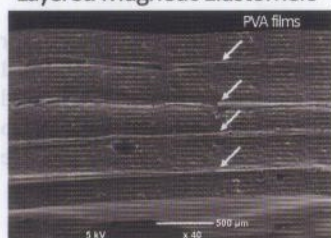
Chem. Lett. 2014, 43 1882–1884 doi:10.1246/cl.140811



## Enhanced Magnetoelastic Behavior of Magnetic Elastomers with Layered Structure

Tsubasa Oguro, Shunta Kanauchi, Tetsu Mitumata,\* Shingo Tamesue, and Takeshi Yamauchi

## Layered Magnetic Elastomers

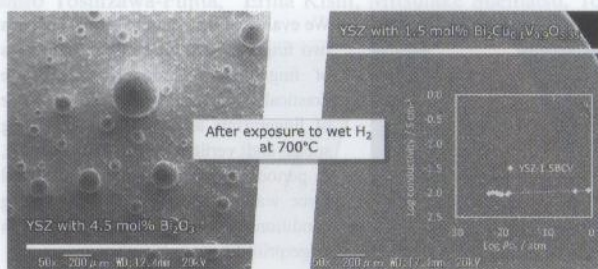


We synthesized magnetic elastomers with layered structure using PVA films. The layered magnetic elastomers demonstrated the increment in the storage modulus with an order of MPa, indicating the stress transfer among imperfect short chains of magnetic particles bridging via PVA films.

Chem. Lett. 2014, 43 1885–1886 doi:10.1246/cl.140723

## Low-temperature Sintering of Yttria-stabilized Zirconia Using Bismuth–Vanadium Oxide as a Sintering Aid at 800 °C

Masahiro Nagao,\* Kazuyo Kobayashi, and Takashi Hibino



The addition of copper-doped bismuth–vanadium oxides to YSZ influenced the sinterability and electrochemical conductivity. Bi<sub>2</sub>Cu<sub>0.1</sub>V<sub>0.9</sub>O<sub>5.35</sub> reduced the sintering temperature from 1300 to 800 °C. YSZ with 1.5 mol % Bi<sub>2</sub>Cu<sub>0.1</sub>V<sub>0.9</sub>O<sub>5.35</sub> had a lower conductivity than pure YSZ sintered at 1300 °C; however, it exhibited no P<sub>O<sub>2</sub></sub> dependence under reducing conditions (P<sub>O<sub>2</sub></sub> = 10<sup>−5</sup>–10<sup>−24</sup> atm), demonstrating its suitability as a solid-oxide fuel cell electrolyte.

Chem. Lett. 2014, 43 1887–1889 doi:10.1246/cl.140712

## Spatially Controlled Initiation–Termination of Supramolecular Polymerization:

## Creation of End-capped Nanofiber with Discrete Length in Microflow

Munenori Numata\* and Ryoichiro Sakai

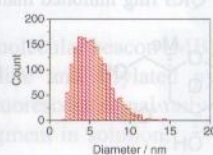
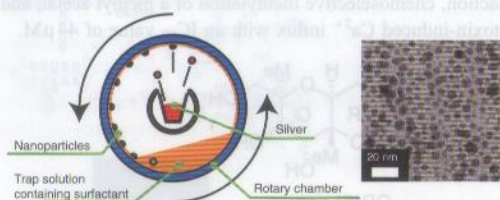


Self-assembly of  $\pi$ -conjugated molecules is an attractive way to create functional materials by amplifying the inherent molecular functionality. In addition to molecular design of  $\pi$ -conjugated molecules, precise control over the self-assembling field would be indispensable for the preparation of novel fine nanomaterials. Herein, we propose a potential of microfluidics as the tunable self-assembling field for  $\pi$ -conjugated molecules.

Chem. Lett. 2014, 43 1890–1892 doi:10.1246/cl.140722

## Synthesis and Characterization of Silver Nanoparticles by Vacuum Evaporation on Running Hydrocarbon Solution Containing Nonionic Surfactant in Cylindrical Glass Chamber

Takashi Ienaga, Yoshio Nakahara, and Keiichi Kimura\*



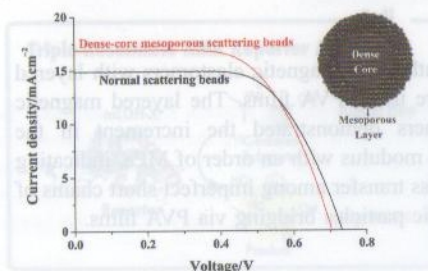
This study reports the effective fabrication of monodisperse and spherical silver nanoparticles by vacuum evaporation on running hydrocarbon solution in a cylindrical glass chamber. In this synthesis, sorbitan monooleate was added to the reaction medium as the protective agent for the nanoparticles, and the effect of its concentration on the particle size was investigated in detail.

Chem. Lett. 2014, 43 1893–1895 doi:10.1246/cl.140746



### Dense Core–Mesoporous Outer Layer Scattering Beads for Dye-sensitized Solar Cells

Lei Lei, Songwang Yang, Qianqian Gao, Junjie Xie, Jiaqing Li, Qipeng Cao, and Yan Liu\*

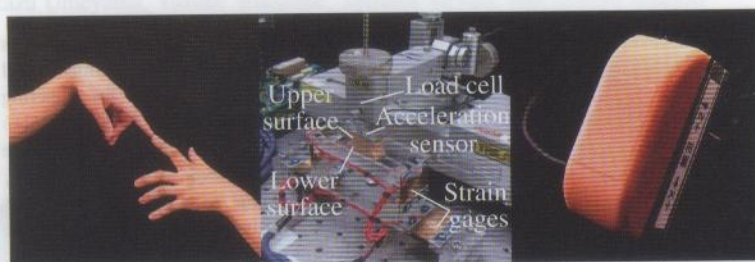


A new scattering particle structure, dense core–mesoporous outer layer beads, was designed and synthesized by a one-pot hydrothermal method. Though the particle size was much larger than generally used scattering particle, the photovoltaic performance was superior to 500-nm rutile particles owing to the large surface area and effective scattering effect.

Chem. Lett. 2014, 43 1896–1898 doi:10.1246/cl.140790

### Friction between Two Finger Models: Effects of Fingerprints on Friction Dynamics

Akira Takahashi, Azusa Yamaguchi, and Yoshimune Nonomura\*



We evaluated the frictional force between two finger models that mimic properties of fingertips. Friction dynamics were drastically changed with the presence of fingerprints and variations in sliding speed and vertical force. For example, a periodic variation of the frictional force was observed under slow sliding conditions between finger models with fingerprint-like rough surfaces.

Chem. Lett. 2014, 43 1899–1900 doi:10.1246/cl.140778

### Gold Nanoparticles Coated with Manganese–Porphyrin That Effectively Shorten the Longitudinal Relaxation Time of Water Molecules Depending on the Particle Size

Yutaka Hitomi,\* Kazuki Aoki, Ryosuke Miyachi, Junya Ohyama, Masahito Kodera, Tsunehiro Tanaka, and Fuminori Sugihara



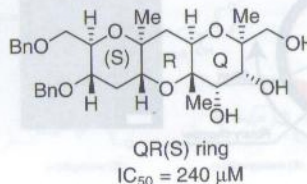
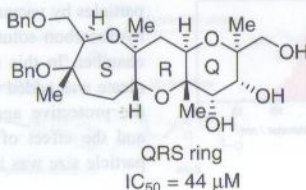
Size-controlled gold nanoparticles coated with a monolayer of manganese(III)–porphyrin complexes have been synthesized. The longitudinal relaxivity per Mn clearly increased as the particle size increased due to the rigid anchoring of manganese(III)–porphyrin via four Au–S bonds.

Chem. Lett. 2014, 43 1901–1903 doi:10.1246/cl.140812

### Synthesis and Biological Activity of the QRS Ring System of Maitotoxin

Hisaaki Onoue, Tomomi Baba, Keiichi Konoki, Kohei Torikai, Makoto Ebine, and Tohru Oishi\*

The QRS ring system of maitotoxin comprised of a 6/6/7 tricyclic system was synthesized through stereoselective construction of five contiguous stereogenic centers on the Q ring via the Achmatowicz reaction, chemoselective methylation of a methyl acetal, and highly diastereoselective dihydroxylation. The QRS ring inhibited maitotoxin-induced  $\text{Ca}^{2+}$  influx with an  $\text{IC}_{50}$  value of 44  $\mu\text{M}$ .

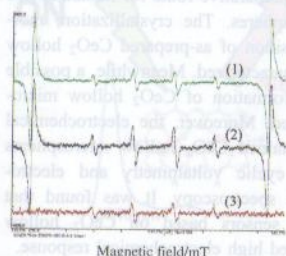


Chem. Lett. 2014, 43 1904–1906 doi:10.1246/cl.140789



## ESR Measurement of Hydroxyl Radicals in Micro-nanobubble Water

Kaori Tada,\* Masayuki Maeda, Yusuke Nishiuchi, Jyunko Nagahara, Takashi Hata, Zhao Zhuowei, Yukihiro Yoshida, Shousuke Watanabe, and Michio Ohmori

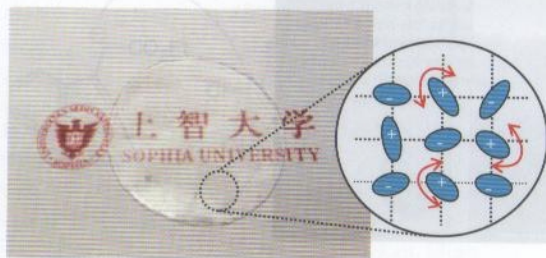


ESR signal pattern of pure water and micro-nanobubble water under the irradiation of weak supersonic wave, (1) pure water, (2) micro-nanobubble water, (3) subtract pure water from the micro-nanobubble water.

Chem. Lett. 2014, 43 1907–1908 doi:10.1246/cl.140691

A Plastic Electrolyte Material in a Highly Desirable Temperature Range: *N*-Ethyl-*N*-methylpyrrolidinium Bis(fluorosulfonyl)amide

Masahiro Yoshizawa-Fujita,\* Erina Kishi, Mitsutake Suematsu, Toshihiro Takekawa, and Masahiro Rikukawa

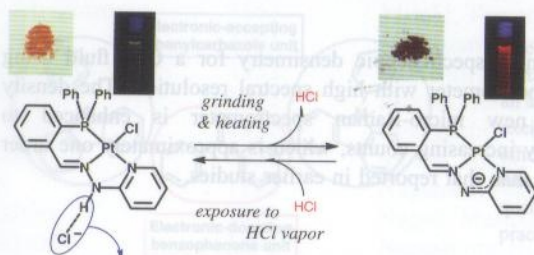


In this study, we report a novel organic ionic plastic crystal, *N*-ethyl-*N*-methylpyrrolidinium bis(fluoro-sulfonyl)amide ([C<sub>2</sub>mpyr][FSA]), with a high melting point over 200 °C, which exhibits plastic crystalline behavior over a wide temperature range.

Chem. Lett. 2014, 43 1909–1911 doi:10.1246/cl.140833

## Tribo-, Thermo-, and Vapochromic Behavior of Hydrazone–Pt(II) Complexes Induced by Protonation–Deprotonation in the Solid State, and Their Luminescence Properties in Solution

Yurika Yamashita, Tomoya Tateishi, Kana Sawaguchi, Atsushi Kobayashi, Masako Kato, and Kiyohiko Nakajima\*

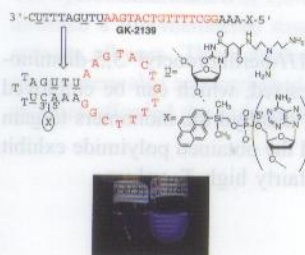


Hydrazone–Pt(II) complexes prepared in this work are luminescent in acetonitrile, and the luminescence colors differ in acidic and basic acetonitrile solutions. The complexes showed novel tribochromic, thermo-chromic, and vapochromic changes in color in the solid state. These intriguing properties are induced by reversible protonation and deprotonation on the coordinated hydrazone ligand.

Chem. Lett. 2014, 43 1912–1914 doi:10.1246/cl.140774

## Development of a Novel Stem-loop-type Molecular Beacon Probe Possessing Polyamine-connected Deoxyuridine and Silylated Pyrene

Jakir Ahmed Chowdhury, Tomohisa Moriguchi, and Kazuo Shinozuka\*



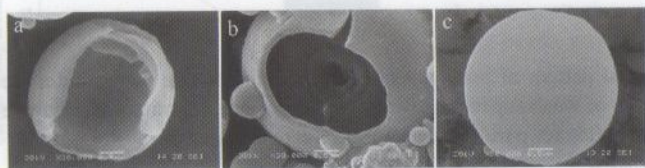
A novel molecular beacon (MB)-type probe possessing polyamine-bearing deoxyuridine and silylated pyrene in a short stem-portion exhibited marked fluorescent signal only under the presence of the complementary DNA fragment in solution.

Chem. Lett. 2014, 43 1915–1917 doi:10.1246/cl.140805



# One-pot Synthesis of Hollow Microspheres of Cerium Oxide and Their Application in Electrochemical Sensors

Jing Zou,\* Wanyun Gong, Sheng Zhang, Xin Zhou, Yuanxiao Zhang, and Jizhou Jiang\*

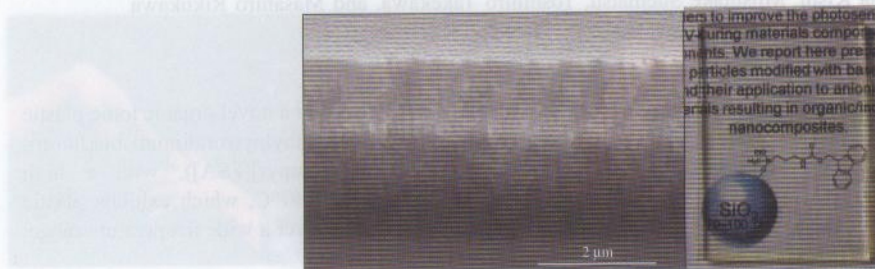


We report a one-pot preparative route for monodisperse CeO<sub>2</sub> hollow microspheres. The crystallization, morphology, and composition of as-prepared CeO<sub>2</sub> hollow microspheres were characterized. Meanwhile, a possible mechanism for the formation of CeO<sub>2</sub> hollow microspheres was discussed. Moreover, the electrochemical properties of the obtained CeO<sub>2</sub> hollow microspheres were analyzed by cyclic voltammetry and electrochemical impedance spectroscopy. It was found that the electrochemical sensors based on CeO<sub>2</sub> hollow microspheres exhibited high electrochemical response.

Chem. Lett. 2014, 43 1918–1920 doi:10.1246/cl.140770

# Preparation of Silica Particles Modified with Base-amplifying Groups and Their Application to Anionic UV Curing

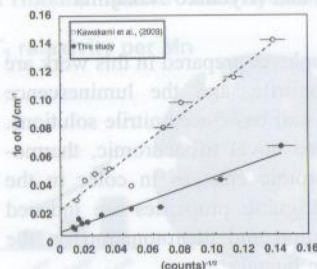
Koji Arimitsu,\* Daiki Iijima, Masahiro Furutani, Yasuyuki Yamada, and Takeshi Wakiya



Chem. Lett. 2014, 43 1921–1923 doi:10.1246/cl.140816

# Improvement of Raman Spectroscopic Densimetry for Carbon Dioxide Fluid

Kohei Takahata,\* Junji Torimoto, and Junji Yamamoto

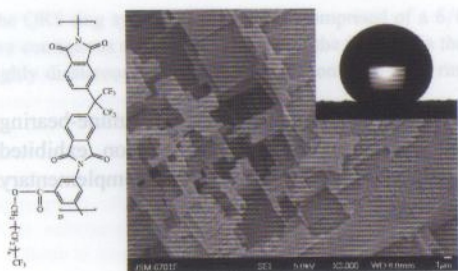


We improved Raman spectroscopic densimetry for a CO<sub>2</sub> fluid using a micro-Raman spectrometer with high spectral resolution. The density precision of a new micro-Raman spectrometer is enhanced to  $\pm 0.0009 \text{ g cm}^{-3}$  by increasing counts, which is approximately one order of magnitude less than that reported in earlier studies.

Chem. Lett. 2014, 43 1924–1925 doi:10.1246/cl.140782

# Synthesis and Properties of Low-surface-energy Polyimides

Hai-zhong Wang, Qian Ye, and Xiao-Long Wang\*



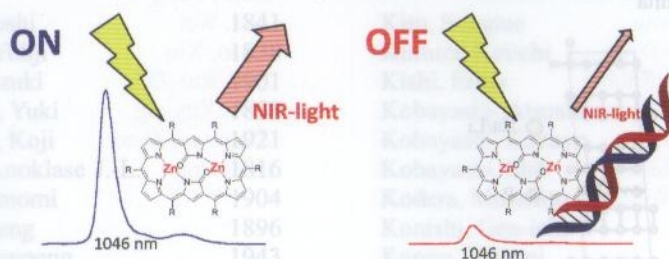
A new diamine monomer, 1H,1H-perfluorooctyl 3,5-diaminobenzoate was successfully synthesized, which can be employed in polycondensation with various dianhydride monomers to gain hydrophobic polyimide films, and the obtained polyimide exhibit excellent thermal stability and a fairly high  $T_g$  values.

Chem. Lett. 2014, 43 1926–1928 doi:10.1246/cl.140825



## Spectrometric Detection of DNA by the Bis-Zn(II) Complex of a Water-soluble Doubly N-Confused Hexaphyrin

Yoshiya Ikawa, Sho Katsumata, Ryuichi Sakashita, and Hiroyuki Furuta\*

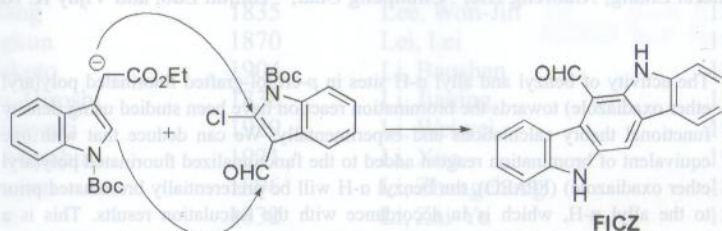


Bis-Zn(II) complex of a water-soluble derivative of *meso*-hexaaryl doubly N-confused hexaphyrin interacted with DNA in aqueous buffer solution, which were detectable by the absorption changes and by the turn-off fluorescence response.

Chem. Lett. 2014, 43 1929–1931 doi:10.1246/cl.140765

Concise Synthesis of 6-Formylindolo[3,2-*b*]carbazole (FICZ)

Daisuke Sekine, Shota Okeda, and Seiji Hosokawa\*

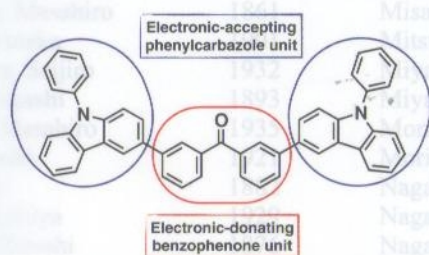


A concise synthesis of 6-formylindolo[3,2-*b*]carbazole (FICZ), a potent ligand of the aryl hydrocarbon receptor (AhR), has been established. The conjugate addition of the enolate derived from indolylacetate to 2-chloro-3-formylindole was accomplished. The following cyclization reaction under the acidic conditions gave the indolo[3,2-*b*]carbazole skeleton.

Chem. Lett. 2014, 43 1932–1934 doi:10.1246/cl.140843

## A Donor–Acceptor-type Host Material for Solution-processed Phosphorescent Organic Light-emitting Devices Showing High Efficiency

Chang-Hwa Jun, Yong-Jin Pu,\* Masahiro Igarashi, Takayuki Chiba, Hisahiro Sasabe, and Junji Kido\*



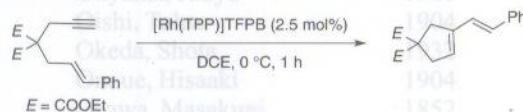
The solution-processable host material, 3,3'-[bis(9-phenylcarbazol-3-yl)]-benzophenone (BCzBP), containing a donor-type phenylcarbazole unit and an acceptor-type benzophenone unit was synthesized. BCzBP showed high excited triplet energy level and a high photoluminescence quantum efficiency with [Ir(mppy)<sub>3</sub>] as a host. Solution-processed green phosphorescent OLEDs using an emitter of [Ir(mppy)<sub>3</sub>] showed high external quantum efficiency (EQE) of 9.8% and long half-lifetime of 365 h at the practical brightness of 1000 cd m<sup>-2</sup>.

Chem. Lett. 2014, 43 1935–1936 doi:10.1246/cl.140807

## Rhodium(III) Porphyrin-catalyzed Reactions via Activation of Alkynes

Makoto Hasegawa, Takuya Kurahashi,\* and Seiji Matsubara\*

The cycloisomerization of 1,6-enynes catalyzed by rhodium(III) porphyrin under mild reaction conditions successfully afforded a five-membered ring system. The rhodium porphyrin was found to be a strong  $\pi$ -Lewis acid that could activate alkynes. Thus, rhodium porphyrin-catalyzed intramolecular Friedel–Crafts-type reactions of alkynes with arenes were also accomplished. Furthermore, rhodium porphyrin-catalyzed intermolecular cyclization of alkynes with styrenes afforded the indene derivatives.



Chem. Lett. 2014, 43 1937–1939 doi:10.1246/cl.140810