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Highlight Review

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Highlight Review

1554 Cu-Rh Redox Relay Catalysts for Synthesis of Azaheterocycles via C-H Functionalization

Shunsuke Chiba doi:10.1246/cl.2012.1554

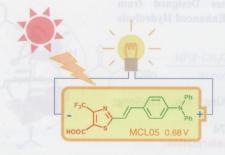
This Highlight Review described the Cu–Rh bimetallic redox relay catalytic system that enables efficient synthesis of highly substituted isoquinolines and their derivatives from readily available aryl ketoximes or α -arylvinyl azides with internal alkynes via C–H bond functionalization. A preliminary mechanistic investigation revealed that both of Cu and Rh catalysts are prerequisites to achieve the present process, and play their particular roles with synergistic cooperation during the multistep sequence.

Letter

1560 Novel 4-Trifluoromethylthiazole-5-carboxylic Acid as Acceptor in Photosensitized Dyes

Satoru Iwata,* Misa Aoyama, Satoshi Uchida, and Kiyoshi Tanaka* doi:10.1246/cl.2012.1560

Electronic Supporting Information



The novel photosensitized dyes having 4-trifluoromethylthiazole-5-carboxylic acid as an acceptor are synthesized. The dyes with this acceptor show high performance as the dye-sensitized solar cells. The trifluoromethyl group is assumed to act as a suppressor of the electron back-donation from the TiO₂ conduction band to the electrolyte and as an accelerator of the charge separation in the photoexcited state.



Observation of ^{47,49}Ti NMR Spectra of TiCl₄/MgCl₂ Catalysts under an Ultrahigh Magnetic Field

Ryutaro Ohashi, Masayoshi Saito, Takashi Fujita, Toshihito Nakai, Hiroaki Utsumi, Kenzo Deguchi, Masataka Tansho, and Tadashi Shimizu* doi:10.1246/cl.2012.1563

Nickel-catalyzed Decarbonylative Polymerization of 5-Alkynylphthalimides: A New Methodology for the Preparation of Polyheterocycles

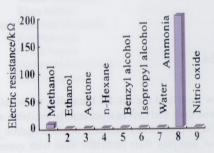
> Makoto Takeuchi, Takuya Kurahashi,* and Seijiro Matsubara* doi:10.1246/cl.2012.1566 Electronic Supporting Information

Nickel-catalyzed decarbonylative cycloaddition was developed, where 5-alkynylphthalimides reacted to afford a new type of polyisoquinolones. It was demonstrated for the first time that decarbonylative cycloaddition can be an elementary process of polycondensation for preparation of heterocyclic polymers.

$$R^1$$
 O Ni cat. $N-R^2$ Ni cat. R^3 R^1 N R^2 R^3 R^1 R^2 $Polyisoquinolone$

1569 Ammonia Chemiresistor Sensor Based on Poly(3-Hexylthiophene) Film Oxidized by Nitrosonium Hexafluorophosphate

> Yan Li, Yong-Qiang Liu, Li-Wei Liu, and Ge-Bo Pan* doi:10.1246/cl.2012.1569



An ammonia chemiresistor sensor is demonstrated on the basis of poly(3-hexylthiophene) film oxidized by nitrosonium hexafluorophosphate. The sensor gave a good response to ammonia, while was insensitive to a variety of organic vapors. The detection limit was estimated to be ca. 0.22 ppm. The redox reaction between ammonia and bipolarons was attributed to the sensor signals.

1571 Unique Adsorption Behavior of Antimicrobial Poly(hexamethylenebiguanide hydrochloride) onto Solid-supported Lipid Films

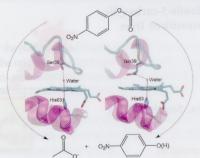
Takaaki Date, Yosuke Matsuoka, Nobuyuki Sakamoto, and Takeshi Serizawa* doi:10.1246/cl.2012.1571

Electronic Supporting Information

Antimicrobial poly(hexamethylenebiguanide hydrochloride) (PHMB) showed the mutilayer adsorption onto negatively charged lipid films above a threshold concentration of PHMB.

1574 Peroxidase-like Enzymes Designed from Cytochrome b₅ Exhibit Enhanced Hydrolysis Activity

Ying-Wu Lin,* Xiao-Xing You, Lie-Song Chen, and Yi-Mou Wu doi:10.1246/cl.2012.1574 Electronic Supporting Information

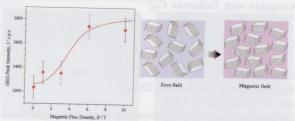


Rationally designed peroxidase-like enzymes, H39Q Cyt b_5 and H39S Cyt b_5 , exhibit hydrolysis activity by catalyzing the hydrolysis of 4-nitrophenyl acetate.

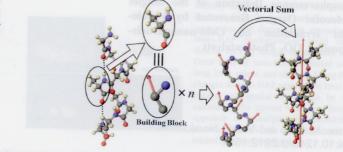
1576 Magnetic Orientation of Hexagonal Carbon Layers at High Temperatures

Magnetic-field dependence of (002) XRD peak intensities of coal tar pitch treated at 773 K, indicating that hexagonal carbon layers should orient cooperatively in parallel to magnetic fields.

Ayumi Sakaguchi, Atom Hamasaki,* Toyonari Sadatou, Yoshitaka Nishihara, Shou Yamamoto, Yuya Sekinuma, and Sumio Ozeki* doi:10.1246/cl.2012.1576



Dipole Moments of Amino Acid Residues, Gly and Ala, in α-Helix: Quantum Chemical Building Blocks for Macrodipole Moment of α-Helical Polypeptide



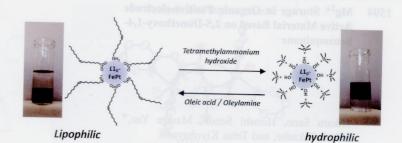
Shunsuke Mieda and Misako Aida* doi:10.1246/cl.2012.1579

Electronic Supporting Information

1581 Reversible Phase Transfer of Ferromagnetic L1₀-FePt Nanoparticles

Shinpei Yamamoto,* Yoshinori Tamada, Teruo Ono, and Mikio Takano doi:10.1246/cl.2012.1581

Electronic Supporting Information



1584 In Vivo Real-time Detection of Plant Response to Physical and Chemical Stresses by Spin Probe ESR

Mami Endo, Hidehiro Kurosawa, Takahiro Kawai,* Tomohiro Ito, and Tateaki Ogata doi:10.1246/cl.2012.1584

1586 Mild Synthesis of Furans with a Quaternary Carbon Substituent at the 2-Position

Akihisa Iwamoto, Aki Katori, Yoshiaki Sashihara, and Satoshi Kojima* doi:10.1246/cl.2012.1586