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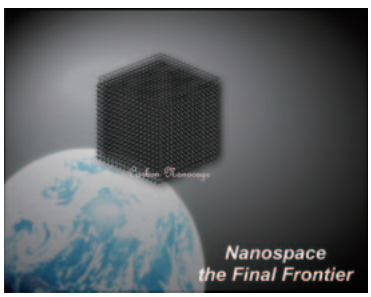
Volume 85, Number 1, January 2012

Accounts

Nanoarchitectonics for Mesoporous Materials

Katsuhiko Ariga,* Ajayan Vinu,* Yusuke Yamauchi,* Qingmin Ji, and Jonathan P. Hill

Bull. Chem. Soc. Jpn. **2012**, *85*, 1–32



We introduce recent developments of mesoporous materials, including syntheses of mesoporous silica, metal oxides, semiconductors, metals, alloys, organic composites, biocomposites, carbon, carbon nitride, and boron nitride as well as film fabrication, pore alignment, and hierarchic structuring for novel functions.

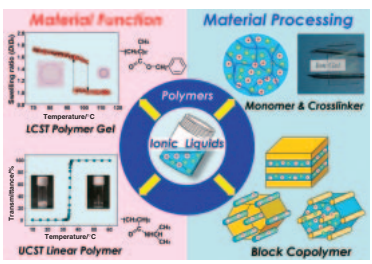
Accounts

Polymers in Ionic Liquids: Dawn of Neoteric Solvents and Innovative Materials

Takeshi Ueki and Masayoshi Watanabe*

Bull. Chem. Soc. Jpn. **2012**, *85*, 33–50

We review recent advances in the use of polymers in ionic liquids from the view point of the "*dawn of neoteric solvents and innovative materials*" and demonstrate material function and processing of such binary systems.



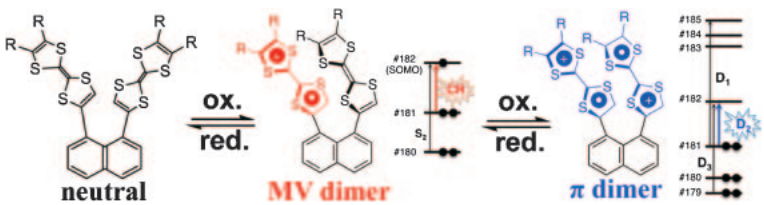
BCSJ Award Article

Face-to-Face Dimeric Tetrathiafulvalenes and Their Cation Radical and Dication Species as Models of Mixed Valence and π-Dimer States

Masashi Hasegawa,* Kota Daigoku, Kenro Hashimoto, Hiroyuki Nishikawa, and Masahiko Iyoda*

Bull. Chem. Soc. Jpn. **2012**, *85*, 51–60

The electronic structures of mixed-valence (MV) and π-dimer states of 1,8-bis(tetrathiafulvalenyl)naphthalene derivatives were investigated. Observed electronic spectra in neutral, mono-, di-, and tetracationic states were in good accordance with theoretical calculations.

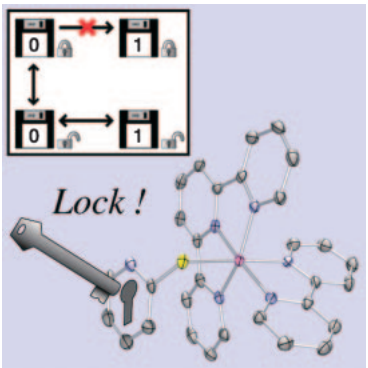


Selected Papers

Control of Isomerization of Pyridinethiol–Ruthenium Complexes via External Stimuli and Factors Affecting Isomerization Behavior

Tomohiko Hamaguchi,* Yoshimasa Inoue, Kikujiro Ujimoto, Satoshi Kawata, and Isao Ando

Bull. Chem. Soc. Jpn. **2012**, *85*, 61–68



A 2-pyridinethiol ruthenium complex undergoes electrochemically induced linkage isomerization and the isomerization is controlled by an acid and base.

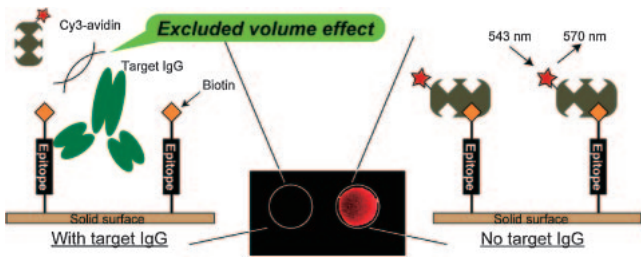
Selected Papers

Noncompetitive On-Chip Immunoassays for Detection of Nonlabeled Antibodies Based on the Excluded Volume Effect of the Target Itself

Kin-ya Tomizaki,* Masaki Obi, and Hisakazu Mihara

Bull. Chem. Soc. Jpn. **2012**, *85*, 69–78

Proposed is a novel, noncompetitive, label-free, and on-chip immunoassay format based on the excluded volume effect by a target antibody that is itself bound to the corresponding epitope on a biochip.



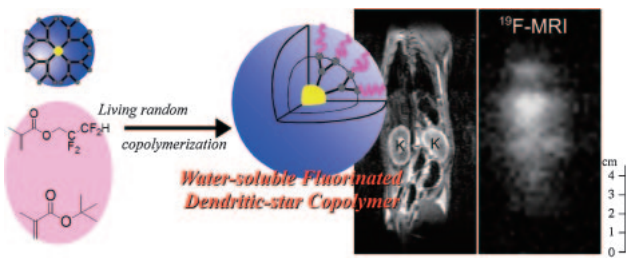
Selected Papers

Water-Soluble Fluorinated Polymer Nanoparticle as ^{19}F MRI Contrast Agent Prepared by Living Random Copolymerization from Dendrimer Initiator

Michihiro Ogawa, Hiromasa Kataoka, Satoshi Nitahara, Hiroyuki Fujimoto, Hiroyuki Aoki,* Shinzaburo Ito,* Michiko Narazaki, and Tetsuya Matsuda

Bull. Chem. Soc. Jpn. **2012**, *85*, 79–86

Water-soluble fluorinated polymer nanoparticles with well-defined structure were successfully prepared as a ^{19}F MRI contrast agent by living radical copolymerization of 2,2,3,3-tetrafluoropropyl methacrylate (TFPMA) and *tert*-butyl methacrylate (*t*BMA) initiated from a dendritic macroinitiator.

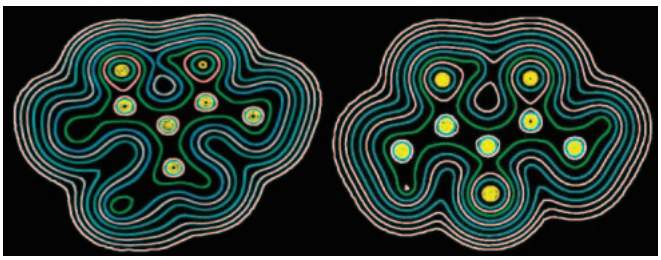


Theoretical Description of Substituent Effects in 2,4-Pentanedione: AIM, NBO, and NMR Study

Heidar Raissi, Mehdi Yoosefian,* Ahmad Hajizadeh,* Jalal shakhs Imampour, Mohammad Karimi, and Farzaneh Farzad

Bull. Chem. Soc. Jpn. **2012**, *85*, 87–92

Electron density contour plots in the F and $COCH_3$ derivatives of acetylacetone which indicate the effect of substitution on electron density distribution in hydrogen-bond formation.

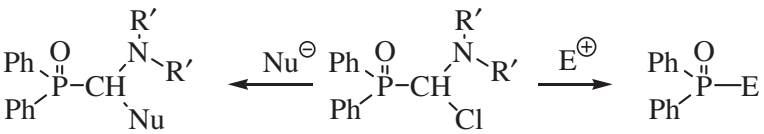


Ambident Reactivity of Chloro(dialkylamino)(diphenylphosphinoyl)methanes

Vasilii Petrovich Morgalyuk,* Tat'yana Vladimirovna Strelkova, and Eduard Eugenievich Nifant'ev

Bull. Chem. Soc. Jpn. **2012**, *85*, 93–100

Chloro(dialkylamino)(diphenylphosphinoyl)methanes show ambident reactivity when reacting with electrophiles and nucleophiles. Depending on coreactant nature, it behaves as either electrophilic substrate or phosphorus nucleophile.

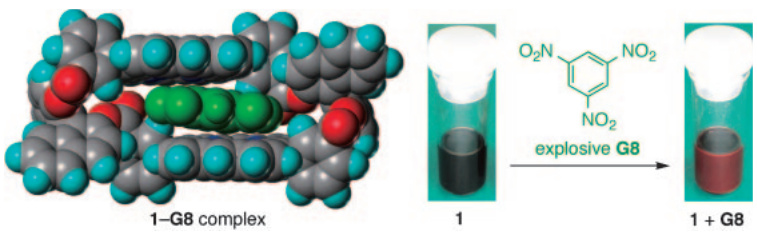


Molecular Recognition of Chiral Diporphyrin Receptor with a Macrocyclic Cavity for Intercalation of Aromatic Compounds

Tadashi Ema,* Norichika Ura, Katsuya Eguchi, and Takashi Sakai*

Bull. Chem. Soc. Jpn. **2012**, *85*, 101–109

Chiral diporphyrin receptor **1** with a cavity for the intercalation of aromatic guests enabled the naked-eye detection of aromatic explosive as well as chiral discrimination in NMR.

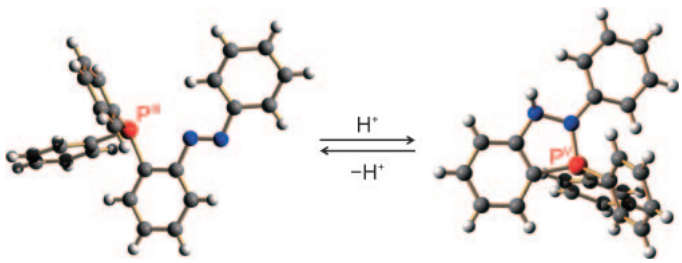


Control of the Equilibrium between 2-Phosphinoazobenzenes and Inner Phosphonium Salts by Heat, Solvent, Acid, and Photoirradiation

Masaki Yamamura, Naokazu Kano,* and Takayuki Kawashima*

Bull. Chem. Soc. Jpn. **2012**, *85*, 110–123

2-(Diphenylphosphino)azobenzenes bearing various substituents, which are in equilibrium with inner phosphonium salts, were synthesized. Substituents, solvents, heat, and acidic additives affected their equilibria. The properties and reactivity of the phosphonium salts in equilibrium with the phosphines can be successfully controlled by photoirradiation.

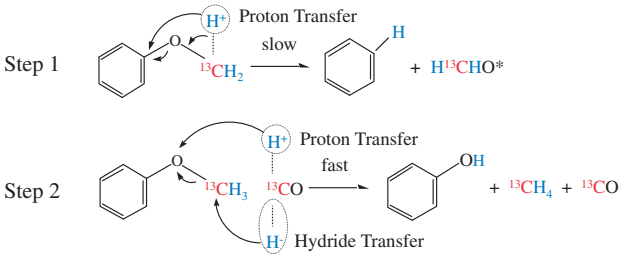


Pathways and Kinetics of Anisole Pyrolysis Studied by NMR and Selective ^{13}C Labeling. Heterolytic Carbon Monoxide Generation

Yasuo Tsujino, Yoshiro Yasaka, Nobuyuki Matubayasi, and Masaru Nakahara*

Bull. Chem. Soc. Jpn. **2012**, *85*, 124–132

Conversion of the ^{13}C-labeled anisole ($H_3{}^{13}COC_6H_5$) at 500 °C was confined to the methoxy-originated fragments, ^{13}CO (conversion fraction f = ca. 1/2) and $^{13}CH_4$ (f = ca. 1/2), and the reactive intermediate, $H^{13}CHO^*$ (f = ca. 1/20), without the phenyl ring disintegration.

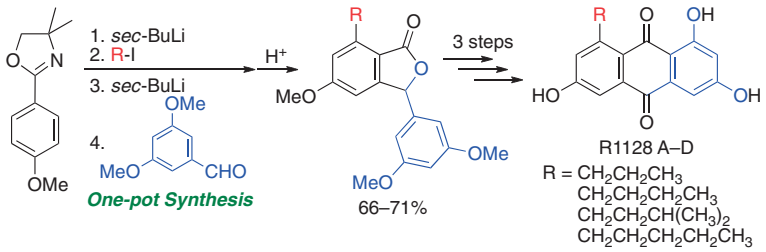


Synthesis of Non-Steroidal Estrogen Receptor Antagonists R1128 A, B, C, and D via an Oxazoline-Promoted Iterative *ortho*-Lithiation Strategy

Tsutomu Fukuda, Koichiro Fukushima, Susumu Sanai, and Masatomo Iwao*

Bull. Chem. Soc. Jpn. **2012**, *85*, 133–135

A concise total synthesis of R1128 A–D has been achieved using iterative *ortho*-lithiation of 2-(4-methoxyphenyl)-4,4-dimethyloxazoline as the key reaction.

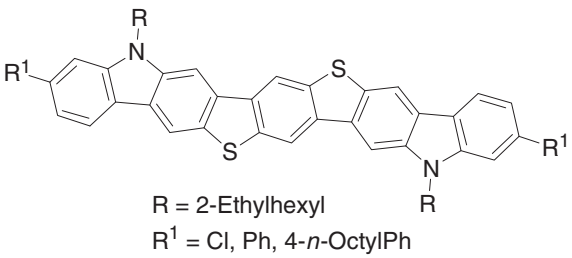


Synthesis, Characterization, and OFET and OLED Properties of π-Extended Ladder-Type Heteroacenes Based on Indolodibenzothiophene

Changsheng Wang, Jun-ichi Nishida,* Martin R. Bryce,* and Yoshiro Yamashita

Bull. Chem. Soc. Jpn. **2012**, *85*, 136–143

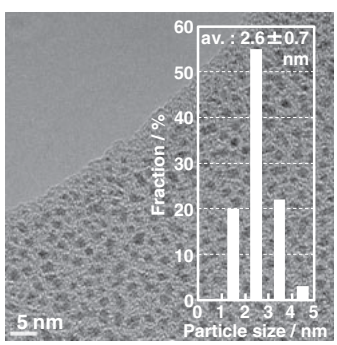
DIBBBT derivative (R^1 = Cl) has been used as a synthon for extension of the π-system by metal-catalyzed cross-coupling reactions, including a copolymerization. p-Type OFET behavior is reported for the DIBBBT systems and OLED behavior is reported for a copolymer.



Structure and CO Oxidation Activity of Pt/CeO_2 Catalysts Prepared Using Arc-Plasma

Satoshi Hinokuma, Madoka Okamoto, Eriko Ando, Keita Ikeue, and Masato Machida*

Bull. Chem. Soc. Jpn. **2012**, *85*, 144–149



Pt deposited by arc-plasma

Pt/CeO_2 as prepared by arc-plasma, which was characterized by highly dispersed uniform metallic Pt crystallites with the size of 2.6 ± 0.7 nm, exhibited higher catalytic activity for CO oxidation than those prepared by conventional wet impregnation.