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■ Vol. 80 Commemorative Accounts

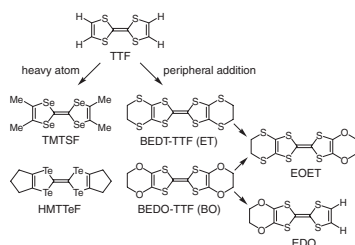
■ Award Accounts

The Chemical Society of Japan Award for 2003

Development of Conductive Organic Molecular Assemblies: Organic Metals, Superconductors, and Exotic Functional Materials

G. Saito* and Y. Yoshida

Bull. Chem. Soc. Jpn. **2007**, *80*, 1–137



We introduce the development of conductive organic molecular assemblies including organic metals, superconductors, single component conductors, conductive films, and conductive liquids, particularly focusing on our own research achievements of molecular design within the framework of both real and energy spaces.

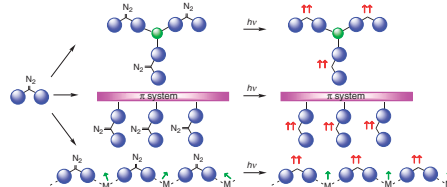
■ Accounts

From Persistent Triplet Carbenes to Persistent High-Spin Polycarbenes

T. Itoh, K. Hirai,* and H. Tomioka*

Bull. Chem. Soc. Jpn. **2007**, *80*, 138–157

Sterically congested diaryldiazomethane to generate stable triplet carbene was used as a building block to construct more complicated poly(diazo) compounds, and the spin states of polycarbenes generated by photolysis of those poly(diazo) compounds were characterized.



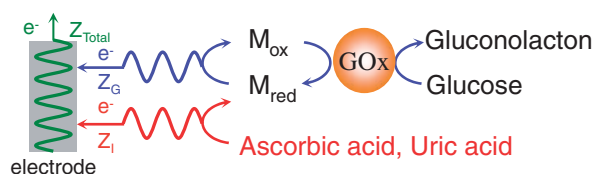
■ BCSJ Award Article

Utilization of AC Impedance Measurements for Electrochemical Glucose Sensing Using Glucose Oxidase to Improve Detection Selectivity

T. Kohma, H. Hasegawa, D. Oyamatsu, and S. Kuwabata*

Bull. Chem. Soc. Jpn. **2007**, *80*, 158–165

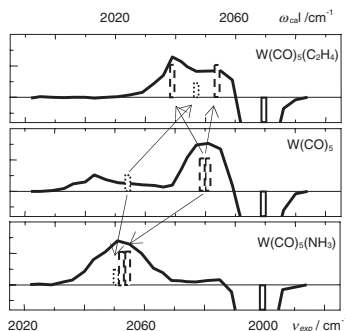
Selective detection of glucose oxidation by glucose oxidase (GOx) was successfully carried out in the presence of ascorbic acid and uric acid by the AC impedance measurements using tris(2,2'-bipyridyl)osmium(II) chloride as an electron mediator (M).



Interaction of a Coordinatively Unsaturated Transition-Metal Center with Small Molecules: DFT Studies on $W(CO)_5L$ ($L = \text{None}, C_2H_4, \text{ and } NH_3$)

K. Kawakami, H. Nakazawa,
T. Kinoshita, and Y. Ishikawa*

Bull. Chem. Soc. Jpn. **2007**, *80*,
166–171

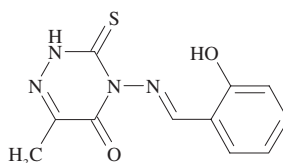


DFT calculations could reproduce the characteristic shifts in the vibrational frequency of carbonyls experimentally observed for the successive processes $W(CO)_6 (-CO) \rightarrow W(CO)_5 (+L) \rightarrow W(CO)_5L$ ($L = C_2H_4, NH_3, \text{ and } CO$).

A New Europium(III) PVC Membrane Potentiometric Sensor Based on 4-(2-Hydroxybenzylideneamino)-6-methyl-3-thioxo-3,4-dihydro-1,2,4-triazin-5(2H)-one

H. A. Zamani,* G. Rajabzadeh,
and M. R. Ganjali

Bull. Chem. Soc. Jpn. **2007**, *80*,
172–177

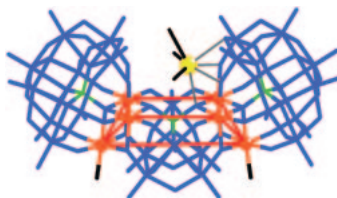


A new europium ion-selective electrode based on 4-(2-hydroxybenzylideneamino)-6-methyl-3-thioxo-3,4-dihydro-1,2,4-triazin-5(2H)-one (HMTDT) as a membrane carrier has been prepared.

V-Shaped Polyoxotungstoarsenates Incorporating a Prism-Like Hexa Transition-Metals Center: $[M_6(H_2O)_2(AsW_9O_{34})_2(AsW_6O_{26})]^{17-}$ ($M^{2+} = Mn^{2+}, Co^{2+}, Zn^{2+}$)

K. Fukaya and T. Yamase*

Bull. Chem. Soc. Jpn. **2007**, *80*,
178–182

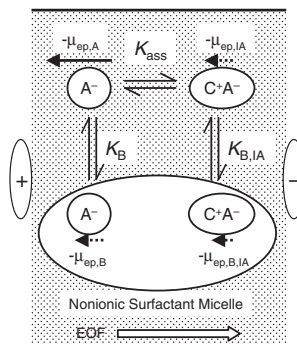


Hexa transition-metals incorporated polyoxotungstoarsenates, $[M_6(H_2O)_2(AsW_9O_{34})_2(AsW_6O_{26})]^{17-}$ ($M^{2+} = Mn^{2+}, Co^{2+}, Zn^{2+}$), have prepared at pH 7–8 and characterized by elemental analysis, electrochemistry, and X-ray crystallography. A single Na^+ cation coordinated by three oxygen atoms (two belonging to B- α $[AsW_9O_{34}]^{9-}$ and one belonging to B- $[AsW_6O_{26}]^{11-}$) in the crevice of the anion appears to stabilize the V-shaped structure.

Ion-Association Extraction of Nitrobenzoate Ions with Tetrabutylammonium Ion into Nonionic Surfactant Micelles as Studied by Capillary Zone Electrophoresis

T. Takayanagi* and S. Motomizu

Bull. Chem. Soc. Jpn. **2007**, *80*,
183–188



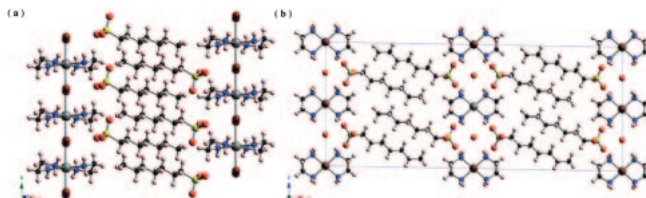
Micelle extraction constants of ion-associate ($K_{ex,m} = K_{ass} \times K_{B,IA}$) were determined by capillary zone electrophoresis. The stepwise equilibrium constants were compared among the benzoate ions, and the extraction system was compared with ion-association solvent extraction.

Tuning of Electronic Structures of Quasi-One-Dimensional Bromo-Bridged Pd^{II}-Pd^{IV} Mixed-Valence Complexes by Substituting Counter Anions

H. Arakawa, D. Kawakami, S. Takaishi, T. Kajiwara, H. Miyasaka, K.-i. Sugiura, M. Yamashita,* H. Kishida, and H. Okamoto

Bull. Chem. Soc. Jpn. **2007**, *80*, 189–191

New quasi-one-dimensional bromo-bridged Pd^{II}-Pd^{IV} mixed-valence complexes with long chain alkylsulfonates [Pd(en)₂][PdBr₂(en)](C_nH_{2n+1}SO₃)₄ · 2H₂O (en = ethylenediamine, *n* = 7, 8, 9, and 10) were synthesized. With increasing alkyl-chain length (*n*) of the counter anions, the Pd^{II}...Pd^{IV} distances decreased, indicating that the oxidation states of the Pd atoms are close to the Pd^{III} state.

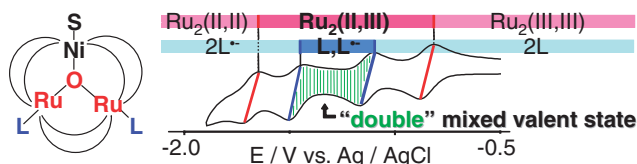


Remarkable Stabilization of a Ligand-Based Mixed-Valence State in the Metal-Based Mixed Valent Ru₂^{II,III}M^{II}(μ₃-O) (M = Co, Ni) Trinuclear Cluster Complexes

M. Tanaka, N. Kariya, M. Abe,* and Y. Sasaki*

Bull. Chem. Soc. Jpn. **2007**, *80*, 192–194

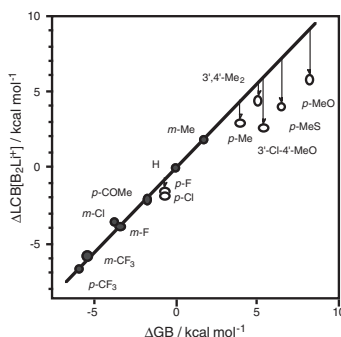
Two consecutive one-electron reductions of the mixed-metal trinuclear complexes [Ru^{III}₂M^{II}(μ₃-O)(μ-CH₃COO)₆(S)(bzpy)₂] (M = Co, S = H₂O) and (M = Ni, S = *N,N'*-dimethylformamide); bzpy = 4-benzoylpyridine) in acetonitrile give stable “double” mixed-valence states where both Ru₂^{II,III} and (bzpy⁻)₂(bzpy) states coexist. Splitting of the ligand-based redox waves, (bzpy)₂/(bzpy⁻)(bzpy)/(bzpy⁻)₂, is 0.35 and 0.34 V for the Co and Ni complexes, respectively.



Gas-Phase Lithium Cation Basicities of Acetophenones: A Linear Relationship between Lithium Cation and Proton Basicities

H. Maeda, M. Irie, S. Than, K. Kikukawa, and M. Mishima*

Bull. Chem. Soc. Jpn. **2007**, *80*, 195–203

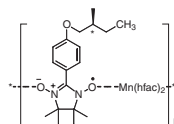
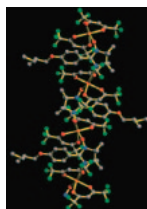


A linear relationship between gas-phase lithium cation basicity and proton basicity was examined for the acetophenone system.

Synthesis and Characterization of a Novel Chiral Molecular-Based Ferrimagnet Prepared from a Chiral Nitronyl Nitroxide Radical and Manganese(II) Ion

M. Akita-Tanaka, H. Kumagai, A. Markosyan, and K. Inoue*

Bull. Chem. Soc. Jpn. **2007**, *80*, 204–207



A new chiral nitronyl nitroxide radical and its Mn^{II} complex were synthesized and characterized. Single crystal X-ray structure and magnetic properties of Mn^{II} complex were investigated.

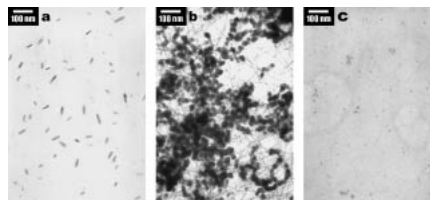
Selected Paper

Preparation and Characterization of Nanomaterials of Tellurium, Bismuth, and Bismuth Telluride

N. Watanabe and N. Toshima*

Bull. Chem. Soc. Jpn. **2007**, *80*, 208–214

Thermoelectrically interesting semiconducting nanomaterials were synthesized by NaBH_4 reduction and successive heat treatment under N_2 . Figures show nanosized (a) Te, (b) Bi, and (c) Bi_2Te_3 prepared by this method in the presence of poly(*N*-vinyl-2-pyrrolidone).



Shape-Selective Alkylation of Biphenyl over H-[Al]-SSZ-24 Zeolites with AFI Topology

A. Ito, H. Maekawa, H. Kawagoe, K. Komura, Y. Kubota, and Y. Sugi*

Bull. Chem. Soc. Jpn. **2007**, *80*, 215–223

The isopropylation of biphenyl (BP) was examined over H-[Al]-SSZ-24 zeolites. Catalytic activities appeared by isomorphous substitution of [B]-SSZ-24 with aluminum nitrate. The selectivities for 4,4'-diisopropylbiphenyl (4,4'-DIPB) are around 70–80%. Selective formation of 4,4'-DIPB occurs inside the channels by shape-selective catalysis.

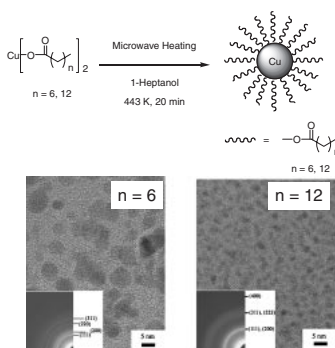


Selected Paper

Preparation of Monodispersed Cu Nanoparticles by Microwave-Assisted Alcohol Reduction

T. Nakamura, Y. Tsukahara, T. Sakata, H. Mori, Y. Kanbe, H. Bessho, and Y. Wada*

Bull. Chem. Soc. Jpn. **2007**, *80*, 224–232



We have succeeded in the selective preparation of monodispersed and oxidation-resistant Cu nanoparticles that are 5–6 and 2–3 nm in diameter using Cu octanoate and Cu myristate as starting precursors, respectively. Formation of the particles and their growth have been traced by using UV–vis absorption spectroscopy and TEM.