

BULLETIN OF THE CHEMICAL SOCIETY OF JAPAN

<http://www.csj.jp/journals/bcsj/>

Volume 83, Number 8, August 2010

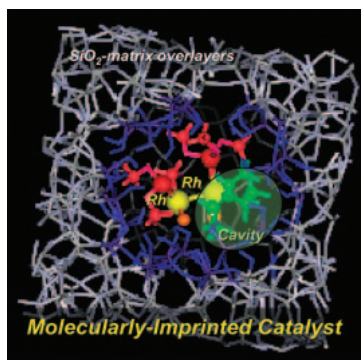
■ Award Accounts

The Chemical Society of Japan Award for Young Chemists for 2007

Surface-Mediated Design and Catalytic Properties of Active Metal Complexes for Advanced Catalysis Creation

M. Tada

Bull. Chem. Soc. Jpn. **2010**, *83*,
855–876



Our recent research on advanced design of supported metal-complex catalysts on oxide surfaces and in situ characterization for structural kinetics of catalytically active species under catalyst-working conditions are highlighted.

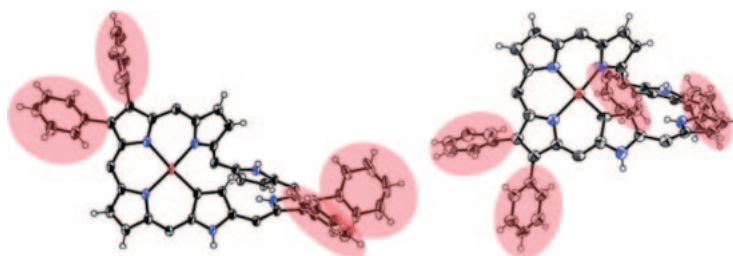
■ BCSJ Award Article

Möbius Aromatic Palladium(II) Complexes of a β -Tetraphenyl *meso*-Hexakis(pentafluorophenyl) Substituted Hexaphyrin(1.1.1.1.1.1)

T. Koide and A. Osuka*

Bull. Chem. Soc. Jpn. **2010**, *83*,
877–879

Pd^{II} metallation of a β -tetraphenyl *meso*-hexakis(pentafluorophenyl) substituted [26]hexaphyrin afforded two twisted Möbius aromatic complexes, which were well separated by column chromatography owing to conformational rigidity conferred by Pd^{II} -complexation.



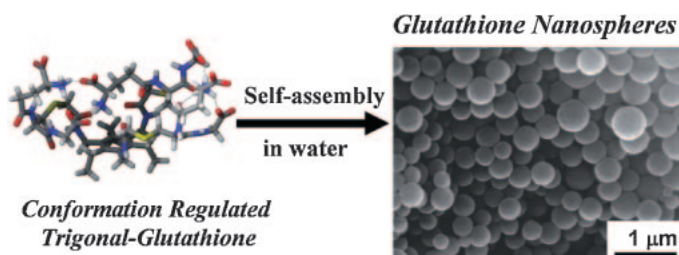
■ Selected Paper

Glutathione Nanosphere: Self-Assembly of Conformation-Regulated Trigonal-Glutathiones in Water

K. Matsuura,* K. Fujino, T. Teramoto,
K. Murasato, and N. Kimizuka

Bull. Chem. Soc. Jpn. **2010**, *83*,
880–886

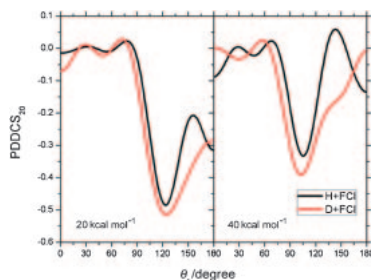
A conformation-regulated C_3 -symmetric peptide conjugate bearing three glutathiones self-assembled into nanospheres with narrow size distribution in water.



Quasiclassical Trajectory Calculations of the Isotope Effect: Chemical Stereodynamics for the $\text{H(D)} + \text{FCl} (\nu = 0-3, j = 0-3) \rightarrow \text{HCl(DCl)} + \text{F}$ Reactions

Y. Peng

Bull. Chem. Soc. Jpn. **2010**, *83*, 887–891



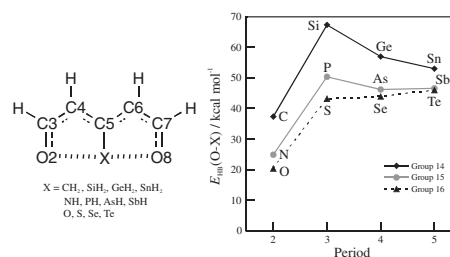
A comparative quasiclassical trajectory study of the $\text{H} + \text{FCl} (\nu = 0-3, j = 0-3) \rightarrow \text{HCl} + \text{F}$ reaction and its isotope variant has been carried out to investigate the isotope effect from a chemical stereodynamics view point.

Theoretical Study of Hypervalent Bonds in 1,6-Diaza-1,6-dihydro- and 1,6-Dihydro-1,6-dioxapentalene Systems with a Heteroatom X at 6a Position (X = 14–16 Group Atoms)

T. Atsumi, T. Abe, K. Akiba, and H. Nakai*

Bull. Chem. Soc. Jpn. **2010**, *83*, 892–899

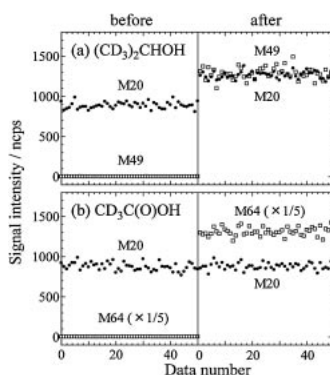
This study theoretically estimated the O–X and N–X hypervalent bond energies, $E_{\text{HB}}(\text{O}-\text{X})$ and $E_{\text{HB}}(\text{N}-\text{X})$, in model compounds with the pentalene skeleton, changing X to group 14–16 and period 2–5 elements.



A Quantitative Examination of the Detection Sensitivities of Proton-Transfer Reaction Mass Spectrometry for Gaseous 2-Propanol and Acetic Acid

S. Inomata* and H. Tanimoto

Bull. Chem. Soc. Jpn. **2010**, *83*, 900–904



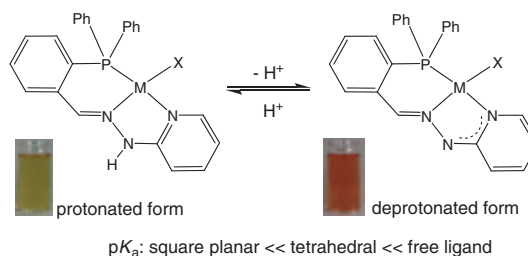
The presence of a channel reproducing H_3O^+ during the reaction of H_3O^+ with 2-propanol results in the difference between the experimental and calculated detection sensitivities for 2-propanol by PTR-MS.

Acid–Base Behavior of Substituted Hydrazone Complexes Controlled by the Coordination Geometry

M. Chang, H. Horiki, K. Nakajima, A. Kobayashi, H.-C. Chang, and M. Kato*

Bull. Chem. Soc. Jpn. **2010**, *83*, 905–910

The PNN-type hydrazone complexes exhibit distinctive color changes by deprotonation/protonation. The acidity constants ($\text{p}K_{\text{a}}$) are largely influenced by the ligand deformation controlled by the coordination geometry, the pseudo-tetrahedron for Cu^{I} complexes and the square-planar for Ni^{II} and Pt^{II} complexes.

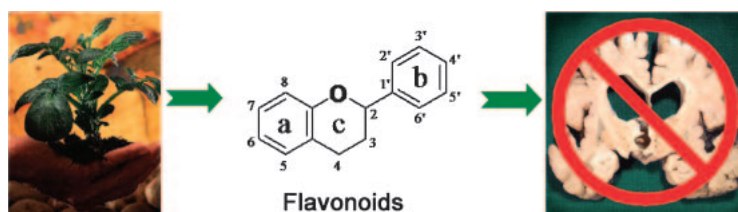


Flavonoids Inhibit Heparin-Induced Aggregation of the Third Repeat (R3) of Microtubule-Binding Domain of Alzheimer's Tau Protein

L.-J. Han, S. Shi, L.-F. Zheng, D.-J. Yang, T.-M. Yao,* and L.-N. Ji

Bull. Chem. Soc. Jpn. **2010**, *83*, 911–922

Flavonoids, found in most plants, are firstly reported for their remarkable inhibitory ability towards heparin-induced aggregation of Alzheimer's tau fragment R3, and a possible molecular mechanism is finally proposed.

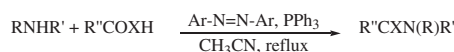


New Heteroaromatic Azo Compounds Based on Pyridine, Isoxazole, and Benzothiazole for Efficient and Highly Selective Amidation and Mono-*N*-Benzylation of Amines under Mitsunobu Conditions

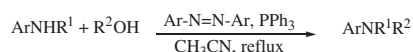
N. Iranpoor,* H. Firouzabadi,* and D. Khalili

Bull. Chem. Soc. Jpn. **2010**, *83*, 923–934

Heterocyclic azo compounds based on pyridine, isoxazole, and benzothiazole are used in conjunction with triphenylphosphine for the conversion of carboxylic acids into amides with primary and secondary aliphatic and aromatic amines and selective mono-*N*-benzylation of primary aromatic amines.



X = O, S
R = alkyl, aryl
R' = H, alkyl
R'' = alkyl, aryl

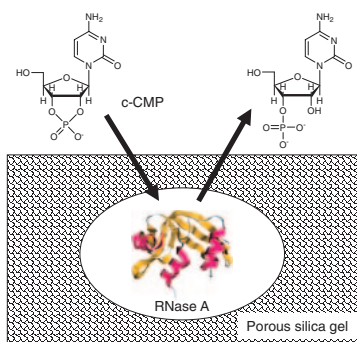


R¹ = H, CH₃, COCH₃
R² = ArCH₂

Structural Transitions and Enzymatic Function of Ribonuclease A Encapsulated in Transparent Porous Silica Gel

M. Iwaoka,* N. Sano, N. Hasegawa, M. Yokokawa, S. Kunigami, and H. Shirai

Bull. Chem. Soc. Jpn. **2010**, *83*, 935–941



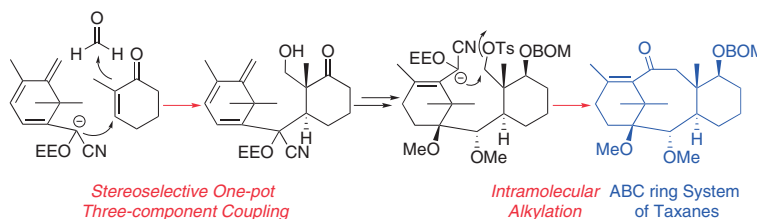
Ribonuclease A (RNase A) encapsulated in transparent wet porous silica gel reversibly unfolded in temperature-jump experiments. The refolded protein exhibited enzymatic activity against a cytidine 2',3'-cyclic monophosphate (c-CMP) substrate in the porous environment.

Construction of the ABC Ring System of Taxanes via Stereoselective One-Pot Three-Component Coupling and Intramolecular Alkylation of a Protected Cyanohydrin Ether

T. Serizawa, S. Miyamoto, S. Fuse, T. Doi, and T. Takahashi*

Bull. Chem. Soc. Jpn. **2010**, *83*, 942–949

Construction of the ABC ring system of taxanes via stereoselective one-pot three-component coupling of a protected cyanohydrin ether with 2-methyl-2-cyclohexenone and formaldehyde, and the intramolecular alkylation of protected cyanohydrin ether is accomplished.

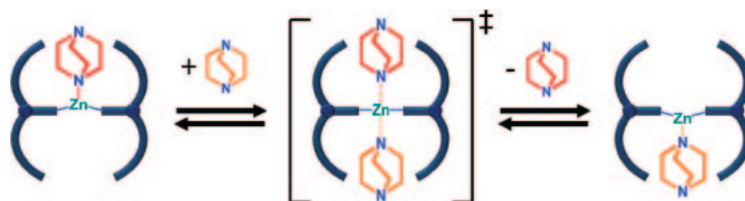


Fast Guest Exchange of a 1:1 Zinc Porphyrin–Amine Host–Guest Complex via a Six-Coordinated Zinc Porphyrin

Y. Hitomi,* J. Ohyama, M. Takegoshi, A. Ando, T. Funabiki, M. Kodera, and T. Tanaka

Bull. Chem. Soc. Jpn. **2010**, *83*, 950–952

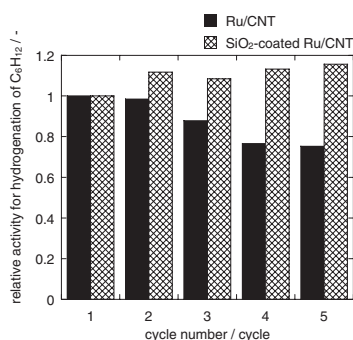
Detailed $^1\text{H NMR}$ study revealed that an amine guest tightly bound to the zinc porphyrin is rapidly released by coordination of a second amine guest via a six-coordinated zinc porphyrin transition state.



Improvement in the Durability of Carbon Nanotube-Supported Ruthenium Catalysts by Coverage with Silica Layers

T. Arike, S. Takenaka,* H. Matsune, and M. Kishida*

Bull. Chem. Soc. Jpn. **2010**, *83*, 953–959



Carbon nanotube-supported Ru catalysts were covered with silica layers. The silica layers inhibited the sintering of Ru particles at high temperatures. The silica-coated catalysts showed high durability to the Ru metal detachment from supports during the repeated hydrogenation of 1-hexene.

Synthesis, Properties, and Fuel Cell Performance of Perfluorosulfonated Poly(arylene ether)s

T. Shimura, K. Miyatake,* and M. Watanabe*

Bull. Chem. Soc. Jpn. **2010**, *83*, 960–968

Novel poly(arylene ether)s containing perfluorosulfonic acid groups (FSPEs) were synthesized for fuel cell applications. These FSPE membranes showed well-developed and interconnected ionic clusters, and thus high proton conductivity and good fuel cell performance.

