In spite of the inertness of the carbon–carbon bonds in organic molecules, there have been growing interests in catalytic cleavage of carbon–carbon bonds which realizes rapid and reconstructive synthesis of new functional organic molecules. In this review, some of the strategies for achieving ruthenium-catalyzed carbon–carbon bond cleaving reactions were disclosed. Each of these reactions involves direct oxidative addition of carbon–carbon bonds, $\beta$-carbon elimination and/or formation of ruthenacycles, $\pi$-allylruthenium complexes, and ruthenium carbene or ketene complexes, respectively, as key steps of the selective carbon–carbon bond cleavage.
**1470 Anomalous Decrease of the Work Function of a Carbide-modified W(110) Surface Induced by Hydrogen Chemisorption**

Hydrogen chemisorption induces a decrease in work function of a carbide-modified W(110) surface, W(110)(15×3)R14°-C, by as large as 1.0±0.1 eV.

Kensuke Tono, Junichi Ikeuchi, Hiroshi Kondoh, and Toshiaki Ohta

**1472 Light-induced Charge Separation in Photosystem I can be Sensitized by an Artificial Fluorescent Dye Covalently Linked to the Photosystem I Complex Surfaces**

Akimasa Nakamura, Shinji Mizoguchi, Emi Yoshida, Yuki Kato, and Tadashi Watanabe

**1474 Synthesis of Nonaphenylenes and Dodeca-phenylenes Using Electron-transfer Oxidation of Lipshutz Cuprate Intermediates**

Masahiko Iyoda, Mohammad Jalilur Rahman, Aoi Matsumoto, Mo Wu, Yoshiyuki Kuwatani, Kazumi Nakao, and Yoshihiro Miyake

**1476 Synthesis and Characterization of Novel Chiral 1,2-Diamines Derived from α-Pinene**

Toshiaki Suzuki, Akira Shibata, Naoya Morohashi, and Yoshihiro Ohba

**1478 Facilitated Disassembly of Polyplexes Composed of Self-assembling Amphiphilic Polycations Enhances the Gene Transfer Efficacy**

Novel micelle-like gene carriers (A) lead to higher transgene expression than the conventional linear-type carriers (B). Its mechanism was found to be the facilitated polyplex disassembly based on the topological factor of the micelle-like carriers.

Tatsuya Kitagawa, Reiko Iwase, Kazuhiko Ishihara, Tetsuji Yamaoka, and Akira Murakami
1480  Asymmetric 1,4-Addition of Arylboronic Acids to \( \alpha,\beta \)-Unsaturated Aldehydes Catalyzed by a Chiral Diene–Rhodium Complex

![Chemical equation]

Tamio Hayashi, Norihito Tokunaga, Kazuhiro Okamoto, and Ryo Shintani

Electronic Supporting Information

1482  Fabrication of Metal Cadmium Nanowires by an Assistant Thermal Decomposition Method

Jian-wei Zhao, Chang-hui Ye, Xiao-sheng Fang, Peng Yan, and Li-de Zhang

The metal Cd nanowires were large-scale fabricated from CdS powders by a simple thermal decomposition method with some zinc powder used to adsorb sulfur chemically in experiment.

Electronic Supporting Information

1484  Confocal Laser Scanning Microscope Analysis of Antimony Porphyrin Chromophore Immobilized on Silica-gel Beads

Jin Matsumoto, Tomokazu Fuchikawa, Yasuhiro Komiya, Yoshiyuki Fueda, Tomoko Matsumoto, Tsutomu Shiragami, and Masahide Yasuda

Electronic Supporting Information

1486  Efficient Oxidation of Alkane with \( \text{O}_2 \) and \( \text{H}_2 \) by Eu–Ti–Pt Catalytic System

![Chemical mechanism]

Ichiro Yamanaka, Toshikazu Gomi, Takashi Nabeta, and Kiyoshi Otsuka

1488  Compression of Single Conjugated-polymer Nanoparticles with AFM Tips

![Graph]

Xingfei Zhou, Hui Xu, Chunhai Fan, Jielin Sun, Yi Zhang, Minqian Li, Wenqing Shen, and Jun Hu

Electronic Supporting Information
1490 Preparation of Hybrid Organic/Inorganic Luminescent Thin Solid Films with Highly Concentrated Laser-dye Cations

Ryo Sasai, Takanori Itoh, Nobuo Iyi, Katsuhiko Takagi, and Hideaki Itoh

1492 Fe\(^{3+}\)-K-10 Montmorillonite Clay Catalyzed Friedel–Crafts Reaction of Unactivated Baylis–Hillman Adducts: An Efficient Stereoselective Synthesis of Trisubstituted Alkenes Containing a Benzyl Substituent

Biswanath Das, Anjoy Majhi, Joydeep Banerjee, Nikhil Chowdhury, and Katta Venkateswarlu

Electronic Supporting Information

1494 Montmorillonite K10 Clay-catalyzed Synthesis of Substituted 1-Aryl Indenes from Baylis–Hillman Adducts

Ponnusamy Shanmugam and Paramasivan Rajas Singh

1496 Synthesis of N-Aryl Pyridin-2-ones via Ligand Coupling Reactions Using Pentavalent Organobismuth Reagents

Kazuhiro Ikegai and Teruaki Mukaiyama

Electronic Supporting Information

1498 Adsorption-induced Self-fusion of Cationic Gold Nanoparticles on Tobacco Mosaic Virus (TMV)

Tetsu Yonezawa, Shin-ya Onoue, and Nobuo Kimizuka
A New Route to the Synthesis of Indolo[2,3-a]carbazoles

A new route to the synthesis of indolo[2,3-a]carbazoles from 3-formylindoles involving only two steps has been described.

Avijit Banerji, Debasish Bandyopadhyay, Bidyut Basak, Pirush Kanti Biswas, Julie Banerji, and Asima Chatterjee

Esterification of Long Chain Aliphatic Acids with Long Chain Alcohols Catalyzed by Multi-valent Metal Salts

Kshudiram Mantri, Ryo Nakamura, Kenichi Komura, and Yoshihiro Sugi

TCE Removal from Porous Media Using an Ozone-saturated Solvent

Martha Elena Alcántara-Garduño, Tetsuji Okuda, Wataru Nishijima, and Mitsumasa Okada

Highly Efficient Dye-sensitized Solar Cells Based on Single Crystalline TiO$_2$ Nanorod Film

Jinting Jiu, Fumin Wang, Seiji Isoda, and Motonari Adachi

Lewis Base-catalyzed Cyanomethylation of Carbonyl Compounds with (Trimethylsilyl)-acetonitrile

Yoshikazu Kawano, Nobuya Kaneko, and Teruaki Mukaiyama
A Two-stage Catalytic Process with Cu–Pd Cluster/Active Carbon and Pd/β-Zeolite for Removal of Nitrate in Water

Yoshinori Sakamoto, Kyosuke Nakamura, Rie Kushibiki, Yuichi Kamiya, and Toshio Okuhara

Preparation and Electrochemical Characterization of Ferrocenyl-coated Polystyrene Monodispersed Latex Particle

Limin Han, Jingyuan Chen, and Isao Ikeda

The Sonochemiluminescence of Lucigenin in N,N-Dimethylformamide Solution under the Influence of Natural Flavonoids

Jian Wang, Liyan Huang, Guonan Chen, and Jinling Huang

Dispersion Behavior and Spectroscopic Properties of Single-walled Carbon Nanotubes in Chitosan Acidic Aqueous Solutions

Teruo Takahashi, Catalin Romeo Luculescu, Katsumi Uchida, Tadahiro Ishii, and Hirofumi Yajima

Rapid Formation of Novel Au Core–Ag Shell Nanostructures by a Microwave-polyol Method

Masaharu Tsuji, Nobuhiro Miyamae, Kisei Matsumoto, Sachie Hikino, and Takeshi Tsuji
Syndiospecific Ring-opening Metathesis Polymerization of endo-Dicyclopentadiene by Tungsten(VI) Phenylimido Catalyst

Shigetaka Hayano and Yasuo Tsunogae

Electronic Supporting Information

Photocatalytic Electron Transfer in Hybrid Titania Nanosheets Studied by Nanosecond Laser Flash Photolysis

Takashi Tachikawa, Tatsuto Yui, Mamoru Fujitsuka, Katsuhiko Takagi, and Tetsuro Majima

Electronic Supporting Information

Structure and Magnetic Properties of a Low-spin Manganese(III) Phthalocyanine Dicyanide Complex

Masaki Matsuda, Jun-Ichi Yamaura, Hiroyuki Tajima, and Tamotsu Inabe

Electronic Supporting Information

Concentration-dependent Size Control of Germanium Nanocrystals

Louisa J. Hope-Weeks

Electronic Supporting Information

Hydrothermal Synthesis and Photocatalytic Property of 2-Dimensional Bismuth Molybdate Nanoplates

Jianqiang Yu and Akihiko Kudo

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1530 Haterumadienone: A New Puupehenone Congener from an Okinawan Marine Sponge, Dysidea sp.

Katsuhiro Ueda, Tomoyuki Ueta, Eric Richard Oktavianus Siwu, Masaki Kita, and Daisuke Uemura

1532 Water-soluble Poly(3,4-ethylenedioxythiophene) Nanocomposites Created by a Templating Effect of β-1,3-Glucan Schizophyllan

Chun Li, Munenori Numata, Teruaki Hasegawa, Tomohisa Fujisawa, Shuichi Haraguchi, Kazuo Sakurai, and Seiji Shinkai

Electronic Supporting Information

1534 Assured Structural Identification of the Spin Adducts Generated from the Nitrone Spin Traps by ESR, MASS, and HPLC Analyses

Tomoki Fuji, Tomoaki Yuzuri, and Kazuhisa Sakakibara

1536 Photopolymerization of Acrylamide Derivatives in Polyelectrolyte Microcapsules

Zonghuan Lu, Tatsiana Shutava, Nurettin Sahiner, Vijay John, and Yuri Lvov

1538 Carbophosphinylation of Arynes with Cyanomethyldiphenylphosphine Oxide

Hiroto Yoshida, Masahiko Watanabe, Joji Ohshita, and Atsutaka Kunai
Highly Selective Oxidation of Diphenylmethane to Benzophenone over Co/MCM-41

Cobalt doped MCM-41 catalyzed highly selective formation of benzophenone (99.1%) in liquid-phase oxidation of diphenylmethane.

Fang Chang, Wanyi Li, Fei Xia, Zhiyin Yan, Jie Xiong, and Jiaqiang Wang

Synthesis and Structures of the First Titanium(IV) Complexes with Cyclic Tetrasiloxide Ligands: Incomplete and Complete Cage Titanosiloxanes

Masakazu Hirotsu, Shinsuke Taruno, Takashi Yoshimura, Keiji Ueno, Masafumi Unno, and Hideyuki Matsumoto

Electronic Supporting Information

A Novel Molecular Structure of a Ferrocene Derivative Containing Mesogenic Group, 1,1'-Bis[2-[4-(4-methoxyphenoxycarbonyl)phenoxy]ethoxycarbonyl]ferrocene

Naotake Nakamura and Masako Nishikawa

Electronic Supporting Information

Porous Carbons from Octafluoronaphthalene by Chemical Reaction and Heat-treatment

Yoshio Yamada, Hiroyuki Ohno, Osamu Tanaike, and Hiroaki Hatori

Electronic Supporting Information

Preparation of Fluorous DMF Solvents and Their Use for Some Pd-catalyzed Cross-coupling Reactions

Hiroshi Matsubara, Louis Maeda, and Ilhyong Ryu

Electronic Supporting Information
1550 Self-assembly of Mixed-valent Ruthenium-(II,III) Pivalate and Octacyanotungstate(V) Building Blocks

Dariusz Matoga, Masahiro Mikuriya, Makoto Handa, and Janusz Szklarzewicz

Electronic Supporting Information

1552 Crystal Structure of Light-induced Colored Species from Photochromic Dimer of 1,4-Bis(imidazolyl)tetrafluorobenzene

Azusa Kikuchi and Jiro Abe

Electronic Supporting Information

1554 An Unnatural Amino Acid Bearing Bipyridyl Backbone: Selective Formation of mer-Isomers for Iron(II) Tris-chelate Complexes

Masato Kyakuno, Shigero Oishi, and Hitoshi Ishida

1556 Highly Efficient Synthesis of Oligo-N-acetyl-glucosamines by Iterative Glycosylation of Di- and Tetrachlorophthaloyl-protected Thioglucosamines

Takeshi Yamada, Shigemori Kinjyo, Jun-ichi Yoshida, and Shigeru Yamago

1558 Vanadate as a Futile, Superoxide Ion-producing Substrate of Trypanothione Reductase from Trypanosoma cruzi

Mohammed Omar Faruk Khan, Seheli Parveen, Gavin Malcolm Seddon, and Kenneth Thomas Douglas
1560 Conversion of Glycerin into Lactic Acid by Alkaline Hydrothermal Reaction

Hisanori Kishida, Fangming Jin, Zhouyu Zhou, Takehiko Moriya, and Heiji Enomoto

1562 Structural Characterization of Ruthenium–Dioxolene Complexes with RuII–SQ and RuII–Cat Frameworks

Tetsuaki Fujihara, Rei Okamura, and Koji Tanaka

1564 Disileny1 Anions Derived from Reduction of Tetrakis(di-tert-butylmethylsilyl)disilene with Metal Naphthalenide through a Disilene Dianion Intermediate: Synthesis and Characterization

Shigeyoshi Inoue, Masaaki Ichinohe, and Akira Sekiguchi

1566 Application of Mixed Polymer Langmuir–Blodgett Films with Poly(3-hexylthiophene) to a Hole-injection Layer for Organic EL Devices

Atsushi Aoki, Shin-nosuke Maeda, Yasuyuki Kawai, Toshiki Tanaka, and Tokuji Miyashita

1568 An Enhancement of Photoproperties of Solid-state TiO2|dye|CuI Type Cells by Coupling Mercurochrome with Natural Juice Extracted from Pomegranate Fruits

Prasad Manjusri Sirimanne, Indika Senevirathna, and Kirthi Tennakone

The crystal and electronic structures of ruthenium–dioxolene complexes, [Ru(trpy)(ClSQ)(PPh3)](ClO4) (1) (ClSQ = 4-chlorobenzosemiquinonate) and [Ru(trpy)(ClCat) (PPh3)] (2) (ClCat = 4-chlorocatecholate), are reported.

Upper green emission part is observed at the EL device in the presence of mixed PHT LB film whereas lower dark part is in the absence.

IPCE action spectrum of TiO2|dye|CuI cell sensitized with (a) mercurochrome, (b) natural pomegranate juice, (c) mercurochrome-natural pomegranate juice, and (d) natural pomegranate juice-mercurochrome.