206 **Enantiomeric Resolution of Intramolecular Amine–Borane Complex with a Chiral Boron Center**

Shinji Toyota, Tomohiro Hakamata, Naoya Nitta, and Fumiko Ito

208 **Synthesis of Novel Nano-structured Clays: Unique Conformation of Pillar Complexes**

Norihito Yamaguchi, Shogo Shimazu, Nobuyuki Ichikuni, and Takayoshi Uematsu

210 **The First Luminescent Anionic Bis(ethynylphenanthroline)gold(I) Complex**

Youhei Yamamoto, Michito Shiotsuka, Sigeru Okuno, and Satoru Onaka

212 **Selection of RNA-binding Peptides Containing an Arg-rich Motif**

Naohiko Shimada, Reiko Iwase, Tetsuji Yamaoka, and Akira Murakami
**Direct Observation of the Li\(^+\)--18-Crown-6 Complex Working as H\(_2\)O Capture in Acetone--Water Mixture**

Yoichi Kikuchi, Kayoko Haramoto, Shunsuke Mochizuki, and Akihiro Wakisaka

**Self-organized Nanocomposites of Functionalized Gold Nanoparticles with Octa(3-aminopropyl)octasilsequioxane**

Xiaqin Wang, Kensuke Naka, Hideaki Itoh, and Yoshiki Chujo

**Topographical Imaging of Soft Structures of Lipid Membranes at Water–solid Interface by Fluorescence Interferometry**

Kenji Suzuki and Hiroshi Masuhara

**Lattice Deformation of Strain-induced Crystallites in Carbon-filled Natural Rubber**

Sirilux Poompradub, Masatoshi Tosaka, Shinzo Kohjiya, Yuko Ikeda, Shigeyuki Toki, Igors Sics, and Benjamin S. Hsiao

The degree of lattice deformation of the natural rubber crystallites became smaller by filling with carbon black. This result implies that as some local stress was transferred to carbon black, relatively less stress was apportioned to strain-induced crystallites.

**Electroless Formation of Pressure Sensitive Thin Films of Platinum Porphyrin Using Surfactants with an Azobenzene Group**

Yoshitaka Ito, Kazunori Mitsuo, Keisuke Asai, Ichiro Okura, and Tetsuo Saji

Stern–Volmer plot for platinum octaethylporphyrin and poly(styrene-co-methyl methacrylate) films. \(P_{ref} = 100\) kPa, \(T_{ref} = 293\) K. Stern–Volmer plot: \(I_{ref}/I = A + B (P/P_{ref})\)
224  **Synthesis of Graft Copolymer from Polysilsesquioxane Initiated by Photoiniferter**

![Chemical structure](image1)


226  **Intermolecular Communication on Lipid Bilayer Membrane. Control of Enzymatic Activity Triggered by a Lipid Signal**

![Diagram](image2)

Specific activation of a lipid signal switched on an enzyme action through systematic and multiple molecular recognitions on lipid bilayer membrane.

Wen-Jie Tian, Yoshihiro Sasaki, Atsushi Ikeda, Jun-ichi Kikuchi, and Sheng-De Fan

228  **CdS Nanobelts on Si Substrate**

![SEM image](image3)

Weifeng Liu, Chuangui Jin, Chong Jia, Lianzeng Yao, Weili Cai, and Xiao Guang Li

230  **A Novel 3-D Network of Fe(II) Ggutarate: 2-D Honeycomb-type Edge-shared FeO₆ Layers and Isolated Interlayer FeO₆ Octahedra**

![Diagram](image4)

YooJin Kim, YunJu Park, Duk-Young Jung, Sangjun Oh, Dae Sung Kim, and Jung Chul Sur

232  **Curdlan and Schizophyllan (β-1,3-Glucans) can Entrap Single-wall Carbon Nanotubes in Their Helical Superstructure**

![Graph](image5)

Munenori Numata, Masayoshi Asai, Kenji Kaneko, Teruaki Hasegawa, Norifumi Fujita, Yumiko Kitada, Kazuo Sakurai, and Seiji Shinkai
234 Synthesis of Novel Luminescent Substrates and Their Incorporation into a Protein Only at a Terminal Site via a Transglutaminase-catalyzed Enzymatic Reaction

Masumi Taki and Kazunari Taira

236 New Synthesis of Isoquinoline Derivatives by Reactions of 2-(2-Methoxyethenyl)benzonitriles with Organolithiums and Lithium Dialkylamides

Kazuhiro Kobayashi, Taiyo Shiokawa, Osamu Morikawa, and Hisatoshi Konishi

238 Synthesis of SF2809-V, Chymase Inhibitor, and Its Analogs by Three Component Reaction: Model Study for High Throughput Synthesis of a Chymase Inhibitor Library

Yasuo Yamamoto and Kenzo Harimaya

240 Cytoplasmic Molecular Delivery by Hematoporphyrin Derivative-based Photodynamic Treatment Using High-intensity Pulsed Laser Irradiation

Yuuichi Miyamoto, Yoshiaki Suzuki, Takashi Meguro, and Masaya Iwaki

242 Photorefractivity of Mixtures of a Ferroelectric Liquid Crystal and Photoconductive Polymers

Yukihito Nakazawa and Takeo Sasaki
244 Large Scale Fabrication of Hollow Palladium Nanospheres by Template-free Approach

In large-scale and high yields hollow palladium nanospheres were fabricated by template-free approach in one step at room temperature.

Xuanjun Zhang, Qingrui Zhao, Yupeng Tian, and Yi Xie

246 A Novel Method for the Preparation of Green-photoluminescent Zinc Oxide by Microwave-assisted Carbothermal Reduction

Tetsushi Yamamoto, Yuji Wada, Hiromitsu Miyamoto, and Shozo Yanagida

248 Baeyer–Villiger Oxidations in Ionic Liquids. A Facile Conversion of Ketones to Esters and Lactones

J. S. Yadav, B. V. S. Reddy, A. K. Basak, and A. V. Narsaiah

250 Highly Isospecific Polymerization of Propylene with Bis(phenoxy-imine) Zr and Hf Complexes Using 1Bu3Al/Ph3CB(C6F5)4 as a Co-catalyst

Aitha Vishwa Prasad, Hanuyuki Makio, Junji Saito, Mitsuhiko Onda, and Terunori Fujita

252 Direct Alkylation and Phenylation of 3,8-Dibromo-1,10-phenanthroline with Grignard Reagents

Kazushige Anzai, Hiroki Fukumoto, and Takakazu Yamamoto
254 Isolation of Cyclohexadiene Intermediates in the Photo-Fries Rearrangement of 2,4-Dimethylnaphth-1-yl and 1,4-Dimethylnaphth-2-yl 2,4,6-Trimethylbenzoates

Three isomeric acyclic cyclohexanones were isolated in good yields from the photolysates of partially or fully blocked naphthyl esters.

Tadashi Mori, Makoto Takamoto, Hideaki Saito, Takahiro Furo, Takehiko Wada, and Yoshihisa Inoue

256 Remarkable Differences in Photo and Thermal (Acid-catalyzed) Reactivities between ortho- and para-Acyclichexadienones as Essential Factors Determining the Overall Efficiency of the Photo-Fries Rearrangement

No reaction

Tadashi Mori, Makoto Takamoto, Hideaki Saito, Takahiro Furo, Takehiko Wada, and Yoshihisa Inoue

258 Amphiphilic Cyclodextrins as Novel Monosaccharide Transport Carriers through a Bulk Liquid Membrane

Monosaccharides, such as D-ribose, D-xylene, and D-glucose, were successfully transported through a bulk liquid membrane by using amphiphilic β- and γ-cyclodextrin carriers.

Toshiyuki Kida, Takeru Ohe, Hiroyuki Higashimoto, Hitoshi Harada, Yohji Nakatsuji, Isao Ikeda, and Mitsuru Akashi

260 Separation of Warfarin Enantiomers by Capillary Gas Chromatography with Chiral Stationary Phase

Chiral capillary GC of warfarin enantiomeric pair

Iwao Abe, Daiki Nagamatsu, Taketoshi Nakahara, and Gerd Fabian

262 Rapid Crystallization of High Quality Cubic Silica SBA-16 Nanoporous Material

Chi-Feng Cheng, Yi-Chun Lin, Hsu-Hsuan Cheng, Shr-Miau Liu, and Hwo-Shuenn Sheu
Direct Speciation of Tin Compounds in Environmental Samples Using Sn K-edge XANES

Naoki Sakakibara, Yoshio Takahashi, Yoshitaka Yamaguchi, Kiyoshi Shibata, and Tomoya Uruga

Improved Long-range Order of Silicious MCM-41 by Gradual Heating of Synthesis Gel

A. K. Sinha, S. Seelan, T. Akita, S. Tsubota, and M. Haruta

Preparation of TiO$_2$ Photocatalysts by Multigelation and Their Photocatalytic Reactivity for the Degradation of 2-Propanol

Bernardshaw Neppolian, Hiromi Yamashita, Yoshimi Okada, Hiroaki Nishijima, and Masakazu Anpo

Synthesis of Meso-/Macroporous Zeolite (Fe,Al)-ZSM-5 Microspheres from Diatomite

Wei Shan, Yahong Zhang, Yajun Wang, Jianchao Xia, and Yi Tang

Self-initiated Chain-growth Polycondensation for Aromatic Polyamides

Tsutomu Yokozawa, Ryuji Sugi, Toshinobu Asai, and Akihiro Yokoyama
An Efficient and Green Synthesis of 2-Arylbenzothiazoles in an Ionic Liquid, [pmIm]Br under Microwave Irradiation

Brindaban C. Ranu, Ranjan Jana, and Suvendu S. Dey

Synthesis and Properties of 9,9'-Diaryl-4,5-diazafluorenes. A New Type of Electron-Transporting and Hole-Blocking Material in EL Device

Katsuhiko Ono, Tomoki Yanase, Masakazu Ohkita, Katsuhito Saito, Yosuke Matsushita, Shigeki Naka, Hirohiko Okada, and Hiroyoshi Onnagawa

Surface-enhanced Infrared Spectrum of CO Adsorbed on Cu Electrodes in Solution

Hiroto Miyake and Masatoshi Osawa

Preparation of Hydrogenated Surfactant/SC CO₂ Micelles and Their Micropolarity Determination

Zameer Shervani, Juncheng Liu, and Yutaka Ikushima

High Selective Conversion of Poly(ethylene terephthalate) into Oil Using Ca(OH)₂

Toshiaki Yoshioka, Eisaku Kitagawa, Tadaaki Mizoguchi, and Akitsugu Okuwaki
284 **Electrochemical Behavior of Methyl- and Butyl-Terminated Si(111) in Aqueous Solution**

Daisuke Niwa, Tomoyuki Inoue, Hiroshi Fukunaga, Toru Akasaka, Taro Yamada, Takayuki Homma, and Tetsuya Osaka

![Graph showing electrochemical behavior](image)

286 **Novel Ultrasonication-assisted Carbonyl Allylation Mediated by SnCl₂ in Water**

Carbonyl allylation mediated by SnCl₂ in water under ultrasonication without using any Lewis acid catalyst.

Jun Wang, Gu Yuan, and Chang-Qing Dong

![Chemical reaction](image)

288 **Potassium Hydrogen Sulfate-Catalyzed Reactions of Indoles: A Mild, Expedient Synthesis of Bis-indolylmethanes**

Electrophilic substitution of indole with aldehydes catalyzed by potassium hydrogen sulfate is reported.

Rajagopal Nagarajan and Paramasivan T. Perumal

290 **Synthesis and Characterization of Strontium Carbonate Nanowires with α Axis Orientation and Dendritic Nanocrystals**

The strontium carbonate nanowires that grow along the α axis were synthesized in large scale through simple hydrothermal approach for the first time. The aspect ratio of the product is more than 1000. Dendritic nanocrystals were also generated at low temperatures. Moreover, this method is feasible to be applied in the synthesis of barium carbonate nanowires.

Qing Huang, Lian Gao, Ye Cai, and Fritz Aldinger

292 **Water Sorption of CaCl₂-Containing Materials as Heat Storage Media**

Heat storage capacity with water sorption on CaCl₂/FSM16 was 3.5 times as high as that on Na form Y-zeolite.

Chun Yi Liu, Kentaro Morofuji, Kenji Tamura, and Ken-ichi Aika
294 Palladium-Catalyzed H–D Exchange Reaction under Hydrothermal Condition

\[
\begin{align*}
\text{H}_2\text{H}_2\text{H}_2 & \rightarrow \text{D}_2\text{D}_2\text{D}_2 \\
& \text{Pd/C (2 mol%)} \\
& \text{D}_2\text{O, 250 °C, 12 h}
\end{align*}
\]

Seijiro Matsubara, Yutaka Yokota, and Koichiro Oshima

296 Charge Transport in a π-Stacked Poly(di-benzofulvene) Film

hole drift through stacked π-electron system

Tamaki Nakano, Tohru Yade, Masaaki Yokoyama, and Norio Nagayama

298 Effects of K\textsubscript{5}SiW\textsubscript{11}O\textsubscript{39}Co on Mitogenic Activity of Basic Fibroblast Growth Factor

Conformation changes of bFGF induced by POM (K\textsubscript{5}SiW\textsubscript{11}O\textsubscript{39}Co) were observed by fluorescence and CD spectra. The mitogenic assay showed that POM in various concentration ranges produced different effects on mitogenic activity of bFGF.

Liwei Sun, Qiang Wu, Ning Liu, Cheng Yang, Liyan Liu, Zhiqiang Liu, and Daqing Zhao

300 Monophosphate as Eminent Ligand to Bind Ce(IV)/EDTA Complex for Site-selective DNA Hydrolysis

Wen Chen, Tomoyuki Igawa, Jun Sumaoka, and Makoto Komiyama

302 Carbon–Carbon Bond Formation in Glycolic Acid Generated Spontaneously from Dichloromethane in Hot Water

\[
\begin{align*}
\text{CH}_2\text{(OH)}_2 + \text{HCOOH} & \rightarrow \text{HOCH}_2\text{COOH} + \text{H}_2\text{O} \\
\text{(C1)} & \text{(C1)} & \text{(Glycolic acid; C2)}
\end{align*}
\]

A new carbon–carbon bond formation in hot water was found. Hydrothermal reaction of dichloromethane (CH\textsubscript{2}Cl\textsubscript{2}) at 1 mol/dm\textsuperscript{3} leads to the formation of glycolic acid at an yield of 50% without metal catalysts in the temperature range of 200–250 °C.

Chihiro Wakai, Saiko Morooka, Nobuyuki Matubayasi, and Masaru Nakahara
304 Bi(OTf)$_3$- and Bi(TFA)$_3$-Catalyzed Ring Opening of Epoxides with Anilines under Microwave Irradiation

Ahmad R. Khosropour, Mohammad M. Khodaei, and Kazem Ghozati

306 Stereoselective Intercalation of Hexose for Layered Double Hydroxide by Calcination-Rehydration Reaction

Sumio Aisawa, Hidetoshi Hirahara, Satoshi Takahashi, Yoshiro Umetsu, and Eiichi Narita

308 First Example of a Heptacyclic Tetranuclear, Five- and Six-coordinate Titanium Complex, $[\{\text{PrO}_2\text{Ti}(\mu^3\text{O})\text{TiCl}(\mu^3\text{PrO}(\text{OC}_6\text{H}_4)_2\text{PPh})_2\}]$

Srinivasan Priya, Maravanji S. Balakrishna, and Joel T. Mague

310 The Sea Urchin-shaped CaCO$_3$ via Template Mineralization on Surface-functionalized Vaterite Particles by Tiopronin-protected Gold Nanoparticles

Dong-Ki Keum, Kensuke Naka, and Yoshiki Chujo

312 Iron(III) Chloride as a Water-Compatible Lewis Acid for Diastereoselective Aldol Reactions in Water in the Presence of a Surfactant

Naohiro Aoyama, Kei Manabe, and Shū Kobayashi
314 A Facile Synthesis of Various Fluorine-Containing Indole Derivatives via Palladium-Catalyzed Annulation of Internal Alkynes

Jungha Chae, Tsutomu Konno, Takashi Ishihara, and Hiroki Yamanaka

316 A Reaction Intermediate Involved in Oxygenation of Catecholatoiron(III) Complexes with Molecular Oxygen — Relevance to Catechol Dioxygenases

Yutaka Hitomi, Yuichiro Tase, Masakazu Higuchi, Tsunehiro Tanaka, and Takuzo Funabiki

318 New Fluorescent Stains for Protein Detection in Sodium Dodecyl Sulfate–Polyacrylamide Gels

Soo Yeon Hong, Hyunsook Jun, Seung Soo Yoon, Chulhun Kang, and Myungkoo Suh

320 First Application of Calixarenes as Extractants in Room-temperature Ionic Liquids

Kojiro Shimojo and Masahiro Goto

322 Facile One-pot Syntheses of Amidines and Enamines from Oximes via Beckmann Rearrangement Using Trifluoromethansulfonic Anhydride

Tomofumi Takuwa, Tomofumi Minowa, Jim Yoshitaka Onishi, and Teruaki Mukaiyama
Direct Chemical Synthesis of Gold Nanowires with 2-D Network Structure and Relationship between the Presence of Gold Ions and Shape Stability of Gold Nanowires

Gold nanowires uniformly covering a 2-dimensional space were synthesized by direct reduction of AuCl₄ with sodium citrate. The shape stability of nanowires was related to the presence of gold ions in the solution phase.

Lihua Pei, Koichi Mori, and Motonari Adachi

Excited-state Intramolecular Proton Transfer (ESIPT)-type Phosphorescence of 2-Aminobenzophenone in 77 K Matrices

Excited triplet state of photoenol (¹Enol) of 2-aminobenzophenone (2-ABP) in 77 K matrices has been observed by laser-induced luminescence spectroscopy.

Masahide Hagiri, Nobuyuki Ichinose, Jun-ichiro Kinugasa, Tatsuya Iwasa, and Toshihiro Nakayama

Synthesis of Functionalized Fullerene by Mono-alkylation of Fullerene Cyclopentadienide

Ryo Hamasaki, Yutaka Matsuo, and Eiichi Nakamura

Desulfurization of Thiophene in Alkaline Supercritical Water Studied by ¹H and ¹³C NMR

Thiophene was successfully desulfurized in supercritical water, and was disintegrated into S²- and such carboxylic acids as formic, acetic, and succinic acids.

Shinya Yoshida, Koji Takewaki, Keiichi Miwa, Chihiro Wakai, and Masaru Nakahara

Synthesis of L-Cysteine and L-Cysteic Acid by Paired Electrolysis Method

L-Cysteine and L-cysteic acid were synthesized by paired electrolysis method. A high purity over 98% and high yield over 90% of both products were gained. The cyclic voltammetry behaviors of hydrobromic acid and cysteine showed a typical EC catalytic process took place in the anodic cell. Anode reaction and successive chemical reaction accelerated each other to get a high speed and current efficiency.

Xixin Wang and Jianling Zhao
334  Growth of \( \text{Sb}_2\text{O}_3 \) Nanotubes via a Simple Surfactant-assisted Solvothermal Process

We report a simple surfactant-assisted solvothermal synthesis of \( \text{Sb}_2\text{O}_3 \) nanotubes. The nanotubes have an orthorhombic structure with outer diameters ranging from 40 to 150 nm, the wall thickness of 10 to 40 nm and a length of up to several micrometers. The nanotubes might be formed by a rolling process.

Yunxia Zhang, Guanghai Li, and Lide Zhang

336  Synthesis of Bamboo-shaped TiO\(_2\) Nanotubes in Nanochannels of Porous Aluminum Oxide Membrane

The morphologies of nanotubes by upright dipping manner show voids and knots in the tubular structures, which made the nanotubes looked like bamboo. The regions of high electron density appear along the tubes and transect the hollow regions at intervals ranging from 80 to 300 nm.

Tianyou Peng, Huanping Yang, Gang Chang, Ke Dai, and Kazuyuki Hirao

338  Physical Properties of Monofluorodimethyl Carbonate

Monofluorodimethyl carbonate (MFDMC) exerts the polar effect on physical properties. Relative permittivity (\(\varepsilon_r\)), viscosity (\(\eta\)), and density (\(\rho\)) of MFDMC are higher than those of dimethyl carbonate (DMC) over a temperature range of 10 to 70 °C, whereas refractive index (\(n_D\)) becomes lower.

Masahiro Takehara, Susumu Watanabe, Noritoshi Nanbu, Makoto Ue, and Yukio Sasaki

340  6-Amino-6-deoxychitosan. Preparation and Application as Plasmid Vector in COS-1 Cells

Taku Satoh, Takeshi Nagasaki, Nobuo Sakairi, and Seiji Shinkai

342  Controlled Assembly of Dinuclear Metallo-rings into 1D Coordination Polymer and Mixed-metal Rare Earth Complexes with Red-to-Green Luminescence Properties

Novel rings connected by chains one-dimensional (1D) coordination polymer of rare earth complex have been rationally synthesized by the reaction of \(\text{Eu(NO}_3\text{)}_3\) and \(L\), 1,4-bis[(2'-benzyl aminoformyl)phenoxy]methyl]benzene.

Zheng-Hong Cai, Yu Tang, Wei-sheng Liu, and Min-Yu Tan
344 Particle Size Control of 11-Mercaptoundecanoic Acid-Protected Au Nanoparticles by Using Heat-treatment Method

Kyung-Hoon Kim, Mami Yamada, Dae-Won Park, and Mikio Miyake

346 Spin-coating Preparation of High Quality Mesoporous Titania Nanofilms

Ningzhong Bao, Kazumichi Yanagisawa, Xiaohua Lu, and Xin Feng

348 Heck-type Benzylation of Olefins with Benzyl Trifluoroacetates

Hirohisa Narahashi, Akio Yamamoto, and Isao Shimizu

350 A Tripodal Ligand Containing Three Imidazole Groups Inducing Spin Crossover in Both Fe(II) and Fe(III) Complexes; Structures and Spin Crossover Behaviors of the Complexes

Hiromi Ohta, Yukinari Sunatsuki, Masaaki Kojima, Seiichiro Iijima, Haruo Akashi, and Naohide Matsumoto

352 Water-free Solution Synthesis of Monodisperse Cu$_2$S Nanocrystals

Toshihiro Kuzuya, Saeki Yamamuro, Takehiko Hihara, and Kenji Sumiyama
354 Novel 1-D Water Nanowires in Crystal of an Organic Host

Akio Wakahara and Toshimasa Ishida

356 Light-triggered Luminescence Modulation Using Labile Axial Coordination to Zinc-Porphyrin

Joe Otsuki, Koichi Narutaki, and Jan M. Bakke

358 Crystal Structure of a Liquid Crystalline Ferrocene Derivative, 1,1’-bis[10-[4-(4-methoxyphenoxycarbonyl)phenoxy]decyloxy]carbonyl]ferrocene

Naotake Nakamura and Takashi Okabe

The first example of U-type structure of liquid crystalline ferrocene derivatives.