Highlight Review

Sulfoximines: Synthesis and Catalytic Applications

Chiral sulfoximines have a stereogenic center at the sulfur atom and their use in asymmetric synthesis is well established. Recently, sulfoximines have been recognized as an interesting new class of chiral ligands, which can be applied in various asymmetric metal catalyses. This review summarizes the latest progress in synthetic methods towards sulfoximines and the application of chiral derivatives in catalytic asymmetric reactions.

Letter

Fabrication of Single Crystalline Neodymium Oxide Nanowires under Mild Conditions

Nanowires of single crystalline neodymium oxide with diameter of 10 to 50 nm and length of several hundred nanometers were synthesized under mild conditions using surfactant-assisted assemblies composed of laurylamine hydrochloride and neodymium alkoxide modified with acetylacetone.

Yusuke Murata and Motonari Adachi
490 Hyperbranched Poly(amidoamine)-modified Multi-walled Carbon Nanotubes via Grafting-from Method

Liang Cao, Wuli Yang, Junwei Yang, Changchun Wang, and Shoukuan Fu

492 Temperature Dependence of the Structure of Alkyl Monolayers on Si(111) Surface via Si–C Bond by ATR-FT-IR Spectroscopy

Ryo Yamada, Masato Ara, and Hirokazu Tada

494 Preparation of Carbon Spheres Composed of Entangled Fibers at Low Temperature

(C2F4)n + Na → C + NaF

Carbon spheres composed of entangled fibers were prepared at 250 °C for 24 h using sodium and polytetrafluorethylene as reactants and benzene as solvent. A possible mechanism of the formation is proposed.

Youobao Ni, Mingwang Shao, Wu Zhang, and Zhengcui Wu

496 Immobilized 1,3-Dialkylimidazolium Salts as New Interface in HPLC Separation

Silica particles were chemically modified with ionic liquids and used as the stationary phases for the HPLC separation of alkaloids following the reversed phase and ion-pair mechanism.

Shu-Juan Liu, Feng Zhou, Liang Zhao, Xiaohua Xiao, Xia Liu, and Sheng-Xiang Jiang

498 Electrochemical Studies of Silver Nanoparticles Tethered on Silica Sphere

The electrochemical properties of silver particles tethered on the silica sphere have been investigated. The technique to tether silver particles on silica sphere was established for the measurement of electrochemical behavior, which efficiently avoided the flocculation of colloidal metal particles in an electrolyte solution.

Zhong-jie Jiang, Chun-yan Liu, and Yong-jun Li

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http://www.csj.jp/journals/chem-lett/
500 Photomagnetic Co–Fe Prussian Blue Thin Films Fabricated by the Modified Langmuir–Blodgett Technique

Takashi Yamamoto, Yasushi Umemura, Osamu Sato, and Yasuaki Einaga

502 Hydrothermal Synthesis and Characterization of Bi$_2$Fe$_4$O$_9$ Nanoparticles

Ying Xiong, Mingzai Wu, Zhenmeng Peng, Nan Jiang, and Qianwang Chen

504 Controlling Wall Thickness of Silica Nanotubes within 4-nm Precision

Qingmin Ji, Rika Iwaura, and Toshimi Shimizu

506 Preparative Synthesis of the Key Intermediate, (4R,5R)-3-Benzylkoxyethyl-4,5-isopropylidenedioxcyclopent-2-enone for Carbocyclic Nucleosides

Hyung Ryong Moon, Won Jun Choi, Hea Ok Kim, and Lak Shin Jeong

508 Iodo-cyclization of N-Homoallyl Thioamides Leading to 2,4-Diaryl-5,6-dihydro-4H-1,3-thiazines
510 Adsorption of Carbon Dioxide on Amine Modified SBA-15 in the Presence of Water Vapor

Norihito Hiyoshi, Katsunori Yogo, and Tatsuaki Yashima

Temperature: 333 K TA: H$_2$N$\text{NH}$NH$\text{Si}(\text{O})_3\text{O}$

512 Self-assembly of Poly(aniline-co-anthranilic acid) Copolymers and PVP into Fibers and Other Microstructures

Xiaofeng Lu, Youhai Yu, Liang Chen, Huaping Mao, Wanjin Zhang, and Yen Wei

514 A New Nickel Coordination Polymer with Dynamic Channels that Mechanically Capture and Release Including Guest Molecules Responding to a Temperature Variation

Mitsuru Kondo, Yusuke Shimizu, Makoto Miyazawa, Yasuhiko Irie, Akira Nakamura, Tetsuyoshi Naito, Kenji Maeda, Fumio Uchida, Tadahiro Nakamoto, and Akira Inaba

516 A Modified Thermodynamically Controlled Deracemization of 2-Allylcyclohexanone and Its Application to Asymmetric Synthesis of (R)-(−)-Epilachnene

Hiroto Kaku, Natsuko Okamoto, Aya Nakamaru, and Tetsuto Tsunoda

518 Dynamic Microscopic Extraction of Europium(III) with 2-Thenoyltrifluoroacetone Observed as Random Fluorescence Flashes at Dodecane–Water Interface

Ayaka Takata, Satoshi Tsukahara, and Hitoshi Watarai
520 The First Synthesis and X-ray Structure of [1.1]Silaferrocenophane Containing Pentacoordinate Silicon Moieties

Ming Bao, Yasuo Hatanaka, and Shigeru Shimada

522 Microwave-Assisted Solvothermal Synthesis of Radial ZnS Nanoribbons

Xiaoying Liu, Bozhi Tian, Chengzhong Yu, Bo Tu, and Dongyuan Zhao

524 Functional Room-temperature Ionic Liquids as Lubricants for an Aluminum-on-Steel System

Zonggang Mu, Weimin Liu, Shuxiang Zhang, and Feng Zhou

526 Highly Porous Organic Nanoparticles Formed from Supercritical Carbon Dioxide Mediated Sol–Emulsion–Gel Method

Jun-Young Lee and Jung-Hyun Kim

528 High Birefringent Bisdiynes and Hexatriynes Based on Double Elimination of β-Substituted Sulfones

Fangguo Ye, Akihiro Orita, Jayamma Yaruva, Tatsuya Hamada, and Junzo Otera
Silylium Ions Stabilized by an Si–X–Si Three-center Bond (X = Halogen or Hydrogen)

Akira Sekiguchi, Yasuyuki Murakami, Norihisa Fukaya, and Yoshio Kabe

Synthesis of Carbon Hollow Spheres by a Reaction of Hexachlorobutadiene with Sodium Azide

Liang Shi, Yunle Gu, Luyang Chen, Zeheng Yang, Jianhua Ma, and Yitai Qian

Selective Catalytic Reduction of NO by CO over Supported Iridium and Rhodium Catalysts

Masahide Shimokawabe and Noriyoshi Umeda

Direct Observation of Specific Interaction between Enzyme-substrate Complexes Using Colloidal Probe Atomic Force Microscopy

Takehiro Suzuki, Yuan-Wei Zhang, Tanetoshi Koyama, Darryl Y. Sasaki, and Kazue Kurihara

Inclusion Formation between 1D Coordination Polymer Host and CS2 through Vapor Adsorption

Satoshi Takamizawa, Ei-ichi Nakata, and Teruo Saito
540  A Novel Mn$_{12}$ Single-molecule Magnet with a \(\mu_3\)-Methanesulfonate Bridge

The first Mn$_{12}$ complex with \(\mu_3\)-methanesulfonate bridge was observed and its single-molecular magnetic property was characterised.

Takayoshi Kuroda-Sowa, Tetsuji Handa, Takehiro Kotera, Masahiko Maekawa, Megumu Munakata, Hitoshi Miyasaka, and Masahiro Yamashita

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542  Highly Ordered Mesoporous Ni Particles Prepared by Electroless Deposition from Lyotropic Liquid Crystals

Yusuke Yamauchi, Tokihiko Yokoshima, Hitomi Mukaibo, Masato Tezuka, Tetsuro Shigeno, Toshiyuki Momma, Tetsuya Osaka, and Kazuyuki Kuroda

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544  Excitation Energy Transfer from Self-aggregates of Zinc Chlorins to a Bacteriochlorin in a Silicate Nanocapsule

Yoshitaka Saga, Sho Akai, Tomohiro Miyatake, and Hitoshi Tamiaki

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546  Preparation of Li$_{1+y-z}$Zn$_x$Mn$_{2-y}$O$_4$ Spinel as a Cathode Material for Li$^+$-batteries

Hideyuki Noguchi, Hiroyoshi Nakamura, Masaki Yoshio, and Hongyu Wang

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548  A FRET Study of Guest Delivery to Concanavaline A by Supramolecular Hosts Composed of an Adamantyl-Appended Cyclophane and Saccharide-Bracketed Cyclodextrins

Osamu Hayashida and Itaru Hamachi
550  **An Optically Active Hydrogel Composed of Cross-linked Poly(4-carboxyphenyl isocyanide) with a Macromolecular Helicity Memory**

Hydrogels composed of a poly(4-carboxyphenyl isocyanide) with a macromolecular helicity memory are synthesized by cross-linking with achiral diamines in water, and the obtained hydrogels maintain their memory even at 90 °C in water, although the helical polymer before the cross-linking lost its memory at high temperature.

Masayoshi Ishikawa, Daisuke Taura, Katsuhito Maeda, and Eiji Yashima

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552  **A New Method for the Esterification of Carboxylic Acids with Various Alcohols by Using Di-2-thienyl Carbonate, a New Coupling Reagent**

![Equation](2-DTC (1.0 equiv.) + DMAP (0.1 equiv.) + CH₂Cl₂, rt → R₂O₂S₂SS⁻CO₂O S⁻RO⁻O⁻S⁻R'OH (1.0 equiv.) + DMAP (0.1 equiv.) + CH₂Cl₂, rt → R₂O⁻O⁻R'

Teruaki Mukaiyama, Yoshiaki Oohashi, and Kentarou Fukumoto

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554  **Distinction of Acid-type on Solid Acid Surface by Comparison of Adsorption Heats of Nitrogen and Argon**

The deviation of heats of N₂ and Ar adsorption was 3 kJ mol⁻¹ at the most on Brønsted acid sites, while Lewis acids gave large difference more than 15 kJ mol⁻¹, enabling the result to distinguish the Brønsted- and Lewis-acid types.

Hiromi Matsuhashi, Keiko Yamagata, and Kazushi Arata

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556  **Aromatic Iodine-Assisted Self-assembly of a Cobalt(II) Complex of Ferron (Ferron = 7-iodo-8-hydroxyquinoline-5-sulfonate)**

Feng Zhang, Yi-Zhi Li, Xu Gao, Hui-Lan Chen, Qi-Tao Liu, Akira Odani, and Osamu Yamauchi

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558  **Surface Reactions on MoO₃ Induced by Tunable Pulse Infrared Free Electron Laser**

![Diagram](C₂H₅OH, C₂H₄, CH₃CHO → C₃H₆OH)

560  **New Epoxide Molten Salts: Key Intermediates for Designing Novel Ionic Liquids**

The first examples of a new family of room temperature ILs, based on pyridinium and imidazolium cations containing glycidyl (2,3-epoxypropyl) chains have been synthesized for designing new functionalized ILs.

D. Demberelnyamba, Sang Jun Yoon, and Huen Lee

562  **Mechanistic Study on the Radiolysis of Dilute PVA Aqueous Solutions**

The structural analysis of degradation intermediates by $^1$H NMR determination demonstrated the key role of hydrogen abstraction in PVA degradation initiated by $\cdot$OH radicals, which led to further chain scission.

Shu-Juan Zhang and Han-Qing Yu

564  **Layer-by-Layer Assembly of Low Molecular Weight Dye/Enzyme Composite Thin Films for Biosensor Application**

Multilayer films of methylene blue (MB) and horseradish peroxidase (HRP) were fabricated layer-by-layer through electrostatic force. MB was firstly pre-absorbed with negatively charged PSS (poly(sodium-p-styrenesulfonate)). The composite films of MB/HRP were uniform and stable. This technique can be applied to reagentless biosensor for H$_2$O$_2$.

Yangmei Li, Zhichun Chen, Xiuming Jiang, and Xianfu Lin

566  **Acidic Properties and Catalytic Activities of Sol–gel Derived Zn$_2$SiO$_4$**

Yoritsugu Shino and Hirotoshi Nakabayashi

568  **Potassium Ion Selective Signaling Based on Intramolecular Dimer Formation of Bis-crown Ether Azochromophore—Chemosensor Exhibiting Forceps Function—**

Takashi Hayashita, Akiko Murakami, and Norio Teramae
Anomalous Ring Cleavage of 1,3-Dithio- and 1,3-Diselenole-2-thiones under the Cross-Coupling Conditions Using Triethyl Phosphite

Masahiko Iyoda, Ryoji Watanabe, and Yoshihiro Miyake

Effect of Concentration, Acid, Temperature, and Metal on Competitive Reaction Pathways for Decarbonylation and Decarboxylation of Formic Acid in Hot Water

Chihiro Wakai, Ken Yoshida, Yasuo Tsujino, Nobuyuki Matubayasi, and Masaru Nakahara

An Effective TiO$_2$ Photocatalyst Prepared under Supercritical Conditions

Hexing Li, Jian Zhu, Guisheng Li, and Ying Wan

Fast Inducing Synthesis of Spherical Superparamagnetic $\beta$-FeOOH Nanoparticles without Aggregation

Honglei Fan, Baozhen Song, Zhenqiu Yang, and Qiaoxia Li

A Square Cyclic Porphyrin Dodecamer: Synthesis and Single-Molecule Characterization

Aiko Kato, Ken-ichi Sugiura, Hitoshi Miyasaka, Hiroyuki Tanaka, Tomoji Kawai, Manabu Sugimoto, and Masahiro Yamashita
580 Display of Azido Glycoside on a Sensor Chip

Using 12-azidododecyl β-mannoside, we successfully immobilized azido glycoside onto a sensor chip by either the Staudinger reaction or reduction of azido group followed by condensation reaction. Specific binding of Concanavalin A to the sensor chip proved immobilization of the glycoside by either method.

Toshinori Sato, Sinya Fujita, Maria Carmelita Z. Kasuya, Kenichi Hatanaka, and Tatsuya Yamagata

582 A Chiral Pybox Ligand as a New Chiral Shift Reagent for Secondary Dialkylammonium Cations

Kazuki Sada, Yuichi Tateishi, and Seiji Shinkai

584 Fabrication of Highly Ordered Anodic Porous Alumina Using Self-organized Polystyrene Particle Array

Hideki Masuda, Yoshitaka Matsui, Masato Yotsuya, Futoshi Matsumoto, and Kazuyuki Nishio

586 Effective Photocontrol of Micelle Formation by Malachite Green Derivative Carrying a Long Alkyl Chain

Ryoko M. Uda, Masatoshi Oue, and Keiichi Kimura

588 Direct Synthesis and Spectroscopic Evidence of Framework Co(II) ions in SBA-15 Mesoporous Molecular Sieves

Ajayan Vinu and Martin Hartmann
KCN-Catalyzed C–C Bond Formation between Imine and gem-Difluoroalkene Moieties: A Facile Synthesis of 2,4-Disubstituted 3-Fluoroquinolines

R1
N
HNCR2

R1

F

Takashi Mori and Junji Ichikawa

Large-scale Synthesis of Crystalline Tellurium Nanowires with Controlled-Diameters via a Hydrothermal-reduction Process

Single crystalline tellurium nanowires with controlled diameters and with high aspect ratios were produced with a yield of ≈95% via a hydrothermal-reduction process using Na2TeO3 and glucose as reactants and sodium dodecyl benzenesulfonate (SDBS) as surfactant at 180 °C.

Liqiang Xu, Yanwei Ding, Guangcheng Xi, Wanqun Zhang, Yiya Peng, Weichao Yu, and Yitai Qian

Useful Method for Direct Introduction of the Photoaffinity 3-(4-Hydroxyphenyl)-3-trifluoromethyl diazirine Group

Toshihiko Shigenari, Toshikazu Hakogi, and Shigeo Katsumura

Aqueous Photo-Dimerization Using 2-Pyridylsilyl Group as a Removable Hydrophilic Group

Toshiki Nokami, Kenichiro Itami, and Jun-ichi Yoshida

Superior Dehydration of CH3OH over Double Layer Bed of Solid Acid Catalysts —A Novel Approach for Dimethyl Ether (DME) Synthesis

Hyun-Seog Roh, Ki-Won Jun, Jae-Woo Kim, and Venkataraman Vishwanathan
600 Nanometer Pore Size Dependence of Intraparticle Diffusion in Silica Gel

Tomomi Sekine and Kiyoharu Nakatani

602 Selective Electrodeposition and Etching on Polymer Brush Template Prepared by Patterned Monolayer Surface Initiated Polymerization

Feng Zhou, Zhilu Liu, Weinan Li, Jingcheng Hao, Miao Chen, Weimin Liu, and D. C. Sun

604 Femtosecond Visible Pump Mid-IR Probe Study on the Effects of Surface Treatments on Ultrafast Photogenerated Carrier Dynamics in n-GaAs (100) Crystals

Kojiro Ebina, Ichizo Yagi, Hidenori Noguchi, and Kohei Uosaki

606 Double Nucleophilic Addition of Azide and Tetramethallyltin to $\alpha,\beta$-Unsaturated Aldimines Promoted by Aluminum Chloride

Makoto Shimizu, Chiaki Yamauchi, and Toshiki Ogawa

608 Effect of Polymerization Degree on Building-up Helical Structure of Oligo(l-lactic acid)

Tatsumi Kimura, Takashi Fukuda, Satoru Shimada, and Hiro Matsuda

We synthesized oligo(l-lactic acid) with almost mono dispersion and could confirm from the CD spectra that the number of repeating units of 8 to 10 was enough to build up the helical structure.
610 Spectrophotometric Determination of DNA Binding Protein, Histone, with 3,4,5,6-Tetrafluoro-2-carboxyphenylfluorone and Manganese(II)

Hiroko Kadobayashi, Terue Nakamori, Takako Yamaguchi, and Yoshikazu Fujita

612 Hydrothermal Synthesis of Ultraviolet-emitting Cerium Phosphate Single-crystal Nanowires

We have developed the traditional hydrothermal approach, which is a facile and versatile low-temperature synthetic method for the synthesis of various 1D systems, to fabricate cerium phosphate single-crystalline nanowires with a narrow distribution of diameters, which display photoluminescence in the UV region.

Wen-Bo Bu, Zi-Le Hua, Hang-Rong Chen, Ling-Xia Zhang, and Jian-Lin Shi

614 Enantioselective Henry Reaction Catalyzed by Optically Active Ketoiminatocobalt Complexes

Youichi Kogami, Takahiro Nakajima, Tomoko Ashizawa, Satoko Kezuka, Taketo Ikeno, and Tohru Yamada

616 Improving Cyclability of 5V Cathodes by Electrochemical Surface Modification

Ali Eftekhari

618 Electrochemical Synthesis of Polypyrrole and Polythiophene in Supercritical Trifluoromethane

Mahito Atobe, Hisashi Ohsuka, and Toshio Fuchigami

Ichiro Hisaki, Takeshi Eda, Motohiro Sonoda, and Yoshito Tobe

622 Noncatalytic Disproportionation and Decarbonylation Reactions of Benzaldehyde in Supercritical Water

Yasuharu Nagai, Nobuyuki Matubayasi, and Masaru Nakahara

624 Acid-Catalyzed Hydrothermal Formation of Carbon–Carbon Bond in Glycolic Acid from a Series of Formaldehyde Producers

Saiko Morooka, Chihiro Wakai, Nobuyuki Matubayasi, and Masaru Nakahara

626 Novel Synthesis and Bridgehead Functionalization of Permethylbicyclo[2.2.2]octasilane

Wataru Setaka, Natsuki Hamada, and Mitsuo Kira

628 Direct Observation of Long-strand DNA Stretching in Microchannel Flow

Kenichi Yamashita, Yoshiko Yamaguchi, Masaya Miyazaki, Hiroyuki Nakamura, Hazime Shimizu, and Hideaki Maeda
630 Recyclable Heterogeneous Rh/SiO$_2$ Catalyst Enhanced by Organic PPh$_3$ Ligand

Hejun Zhu, Yunjie Ding, Li Yan, Yuan Lu, Can Li, Xinhe Bao, and Liwu Lin

632 A Highly Effective and Practical Biaryl Synthesis with Triallyl(aryl)silanes and Aryl Chlorides

Akhila K. Sahoo, Yoshiaki Nakao, and Tamejiro Hiyama

634 A New Approach to Fabricate Sulfur Nanotubes

Chong Jia, Weifeng Liu, Chuangui Jin, Bei Zhang, Lianzeng Yao, Weili Cai, and Xiaoguang Li

636 A Possibility of XANAM (X-ray Aided Non-contact Atomic Force Microscopy)

Shushi Suzuki, Yuichiro Koike, Keisuke Fujikawa, Wang-Jae Chun, Masaharu Nomura, and Kiyotaka Asakura