

# Organosilicon Chemistry IV

From Molecules to Materials

Edited by Norbert Auner and  
Johann Weis

 **WILEY-VCH**

Weinheim · New York · Chichester · Brisbane · Singapore · Toronto

# Contents

Introduction .....	1
<i>Norbert Auner, Johann Weis</i>	
Silicon Biotechnology: Proteins, Genes and Molecular Mechanisms Controlling Biosilica Nanofabrication Offer New Routes to Polysiloxane Synthesis.....	5
<i>Daniel E. Morse</i>	
Investigations on the Nature of Biomineralized Silica by X-Ray Absorption Spectroscopy and Sorption Measurements .....	17
<i>Gallus Schechner, Peter Behrens, Michael Fröba, Bernd Pillep, Joe Wong</i>	
Influence of Substituted Trimethoxysilanes on the Synthesis of Mesostructured Silica Materials ...	22
<i>Stephan Altmaier, Konstanze Nusser, Peter Behrens</i>	
Biocatalysis in Preparative Organosilicon Chemistry: Microbial Reduction of <i>rac</i> -1-(4-Fluorophenyl)-1-methyl-1-sila-2-cyclohexanone and Microbial Hydrolysis of <i>rac</i> -(SiS,CR/SiR,CS)-2-Acetoxy-1-(4-fluorophenyl)-1-methyl-1-silacyclohexane .....	27
<i>Markus Merget, Reinhold Tacke</i>	
Preparation of Silicon- and Germanium-Containing $\alpha$ -Amino Acids .....	33
<i>Markus Merget, Stefan Bartoschek, Reiner Willeke, Reinhold Tacke</i>	
Fascinating Silicon-Chemistry — Retrospection and Perspectives .....	37
<i>Hans Bock</i>	
Raman Spectra of Molecular SiS <sub>2</sub> and GeS <sub>2</sub> in Solid CH <sub>4</sub> .....	59
<i>M. Friesen, H. Schnöckel</i>	
The Quest for Silaketene .....	64
<i>Günther Maier, Hans Peter Reisenauer, Heiko Egenolf</i>	
Donor-Substituted Silylenes: From Gas-Phase Reactions to Stable Molecules.....	70
<i>J. Heinicke, A. Oprea, S. Meinel, S. Mantey</i>	
Different Reactivities of Divalent Silicon Compounds Towards Metallocene Derivatives of Molybdenum and Tungsten.....	76
<i>Stefan H. A. Petri, Dirk Eikenberg and Peter Jutzi</i>	
Reactions of Decamethylsilicocene with Inorganic and Organometallic Main Group Element Compounds.....	80
<i>Thorsten Kühler, Peter Jutzi</i>	
Unusual Silylene Reactions with M(II) Compounds (M = Ge, Sn or Pb).....	84
<i>Barbara Gehrhus, Peter B. Hitchcock, Michael F. Lappert</i>	

---

Silylene and Disilene Reactions with some 1,3-Dienes and Diynes .....	88
<i>Lars Kirmaier, Manfred Weidenbruch</i>	
Sterically Overloaded Silanes, Silylenes and Disilenes with Supersilyl Substituents $t\text{Bu}_3\text{Si}$ .....	93
<i>Nils Wiberg, Wolfgang Niedermayer, Kurt Polborn, Heinrich Nöth, Jörg Knizek Dieter Fenske, Gerhard Baum</i>	
A New Conformational Polymorph of Solid Tetramesityldisilene $\text{Mes}_2\text{Si}=\text{SiMes}_2$ , found by Raman, UV-Vis and Fluorescence Spectroscopy.....	98
<i>Larissa A. Leites, Sergey S. Bukalov, Robert West, John E. Mangette, Thomas A. Schmedake</i>	
Synthesis and Reactivity of Unsaturated Tin Compounds: $\text{Me}_2\text{Sn}=\text{C}(\text{SiMe}_3)_2$ and $\text{Me}_2\text{Sn}=\text{N}(\text{Si}t\text{Bu}_2\text{Me})$ .....	106
<i>N. Wiberg, S. Wagner, S.-K. Vasisht</i>	
The $\text{Si}_4\text{H}_6$ Potential Energy Surface .....	110
<i>Thomas Müller</i>	
Hexaaryltetrasilabuta-1,3-diene: Synthesis and some Reactions .....	117
<i>Stefan Wilms, Manfred Weidenbruch</i>	
Products of the Reaction of Tetrasupersilyl- <i>tetrahedro</i> -tetrasilane $(t\text{Bu}_3\text{Si})_4\text{Si}_4$ with Iodine .....	124
<i>Nils Wiberg, Harald Auer, Kurt Polborn, Michael Veith, Volker Huch</i>	
Intramolecularly $\pi$ -Stabilized Silyl Cations .....	127
<i>Norbert Auner, Thomas Müller, Markus Ostermeier, Julia Schuppan, Hans-Uwe Steinberger</i>	
Silyl Effects in Hypercoordinated Carbocations .....	140
<i>Hans-Ulrich Siehl, Martin Fuß</i>	
Silyl Stabilization in Cyclopropylmethyl Cations: NMR-Spectroscopic and Quantum Chemical Results .....	150
<i>Hans-Ulrich Siehl, Alexander Christian Backes, Olga Malkina</i>	
<i>N,O</i> -Dimethyl- <i>N</i> -silylhydroxylamine, a Compound with Steeply Pyramidal Nitrogen Coordination.....	158
<i>Norbert W. Mitzel, Heinz Oberhammer</i>	
Strong $\beta$ -Donor-Acceptor Bonds in Hydroxylaminosilanes .....	164
<i>Norbert W. Mitzel, Udo Losehand</i>	
$\beta$ -Donor Bonds in Hydroxylamino- and Oximatosilanes.....	170
<i>Norbert W. Mitzel, Udo Losehand</i>	
Synthesis and Rotational Isomerism of Some Iodosilanes and Iododisilanes.....	176
<i>Reinhard Hummeltenberg, Karl Hassler</i>	

The Rotational Isomerism of the Disilanes $t\text{BuX}_2\text{SiSiX}_2t\text{Bu}$ ( $X = \text{Cl, Br and I}$ ): A Combined Raman Spectroscopic, X-Ray Diffraction and Ab Initio Study.....	180
<i>Robert Zink, Harald Siegl, Karl Hassler</i>	
The Rotational Isomerism of the Disilanes $\text{MeX}_2\text{SiSiX}_2\text{Me}$ ( $X = \text{H, F, Br and I}$ ): A Combined Ab Initio and Raman Spectroscopic Study.....	187
<i>Robert Zink, Karl Hassler</i>	
The Rotational Isomerism of $\text{F}_3\text{CSiMe}_2\text{SiMe}_2\text{CF}_3$ : Do Three Conformers Exist in the Liquid state?.....	192
<i>Robert Zink, Karl Hassler, Achim Roth, Reint Eujen</i>	
Formation, Stability and Structure of Aminosilane–Boranes .....	196
<i>Gerald Huber, Alexander Jockisch, Hubert Schmidbaur</i>	
Hydrosilylation and Hydroboration of Indene — a Comparison.....	200
<i>J. Dautel, S. Abele</i>	
Gallium-Silicon Heterocycles .....	207
<i>Alexander Rodig, Wolfgang Köstler, Gerald Linti</i>	
Novel Silaheterocycles by Carbenoid and Diazo Reactions .....	214
<i>Volker Gettwert, Gerhard Maas</i>	
Synthesis and Reactivity of Novel 1,2-Disilacyclopentanes.....	220
<i>Carsten Strohmann, Oliver Ulbrich</i>	
Synthesis of Heavily Halogenated Vinylsilanes .....	226
<i>Uwe Pätzold, Florian Lunzer, Christoph Marschner, Karl Hassler</i>	
Electrochemical Formation of Silicon–Carbon Bonds.....	229
<i>Helmut Fallmann, Christa Grogger</i>	
Heteroaromatic-Substituted Silanes — Synthesis, Lithium Derivatives and Anionic Rearrangements .....	232
<i>Claudia Baum, Andrea Frenzel, Uwe Klingebiel, Peter Neugebauer</i>	
Iodo Trimethylsilylmethylene Triphenylphosphorane — a Molecule of Theoretical and Synthetic Interest.....	238
<i>K. Korth, A. Schorm, J. Sundermeyer, H. Hermann, G. Boche</i>	
Silole-Containing $\pi$ -Conjugated Systems: Synthesis and Application to Organic Light-Emitting Diodes.....	245
<i>Kohei Tamao, Shigehiro Yamaguchi, Manabu Uchida, Takenori Izumizawa, Kenji Furukawa</i>	
Silylhydrazines: Lithium Derivatives, Oxidation and Condensation Reactions .....	252
<i>Eike Gellermann, Uwe Klingebiel, Henning Witte-Abel</i>	

Cyclosilazanes with SiH <sub>2</sub> , SiHal <sub>2</sub> , Si(Hal)NH <sub>2</sub> Groups — Experiments and Molecular Orbital Ab Initio Calculations .....	258
<i>Bettina Jaschke, Uwe Klingebiel, Peter Neugebauer</i>	
Iminosilanes: Precursors of New Rings and Unknown Ring Systems.....	264
<i>Michael Jendras, Uwe Klingebiel, Jörg Niesmann</i>	
Silazanes Derived from Trichlorosilane: Syntheses, Reactions and Structures.....	270
<i>S. Abele, G. Becker, U. Eberle, P. Oberprantacher, W. Schwarz</i>	
Bis(trimethylsilyl)diaminosilanes: Synthesis and Reactions .....	277
<i>Anca Oprea, Steffen Mantey, Joachim Heinicke</i>	
Influence of the Steric Demand of Lithium Trialkylsilylamides, -phosphanides and -arsanides on the Metathesis Reaction with Tris(trimethylsilyl)methylzinc Chloride.....	281
<i>Michael Wieneke, Matthias Westerhausen</i>	
Silicon and Germanium Amidinates .....	287
<i>Hans H. Karsch, Peter A. Schlüter</i>	
Insertion of Aromatic Diisocyanates into the N–Si Bonds of 1,4-Bis(trimethylsilyl)-1,4-dihydropyrazine .....	294
<i>Torsten Sixt, Karl-Wilhelm Klinkhammer, Anja Weismann, Wolfgang Kaim</i>	
Novel Bis(1,2- <i>N,N</i> -Dimethylaminomethylferrocenyl)-Silyl Compounds.....	300
<i>Wolfram Palitzsch, Gerhard Roewer, Claus Pietzsch, Klaus Jacob, Kurt Merzweiler</i>	
Synthesis of Silicon Synthons for a Selective Oligomer Design .....	306
<i>K. Trommer, U. Herzog, G. Roewer</i>	
Synthesis and Characterization of New Precursors Based on Organosilicon for Construction of Porous Solid Structures .....	312
<i>S. Nitsche, E. Weber, K. Trommer, G. Roewer</i>	
Synthesis and Structures of Stable Aminosilanes and their Metal Derivatives: Building Blocks for Metal-Containing Nitridosilicates .....	317
<i>Peter Böttcher, Herbert W. Roesky</i>	
Octachlorocyclotetrasilane, Perchloropolysilane and New Dialkoxy- and Diaminopolysilanes.....	323
<i>Julian R. Koe, Douglas R. Powell, Jarrod J. Buffy, Robert West</i>	
Polysilyl Dianions — Synthesis and Reactivity.....	331
<i>Christian Mechtler, Christoph Marschner</i>	
Synthesis and Reactions of Chlorinated Oligosilanes.....	335
<i>Johannes Belzner, Bernhard Rohde, Uwe Dehnert, Dirk Schär</i>	

---

Base-Catalyzed Disproportionation of Tetrachlorodimethyldisilane — Investigations of the Heterogeneous Catalysts .....	341
<i>Norbert Schulze, Gerhard Roewer</i>	
Synthesis of Linear and Cyclic Bis(trimethylsilyl)aminooligosilanes .....	346
<i>Waltraud Gollner, Alois Kleewein, Karin Renger, Harald Stüger</i>	
Synthesis and Functionalization of Branched Oligosilanes .....	352
<i>S. Chichian, C. Krempner</i>	
Geminal Di(hypersilyl) Compounds: Synthesis, Structure and Reactivity of some Sterically Extremely Congested Molecules .....	356
<i>T. Gross, H. Oehme, R. Kempe</i>	
The Acid-Induced Rearrangement of $\alpha$ -Functionalized Alkylpolysilanes .....	361
<i>F. Luderer, H. Reinke, H. Oehme</i>	
Hypersilyl Compounds of Elements of Group 15 .....	367
<i>W. Krumlacher, H. Siegl, K. Hassler</i>	
$^{29}\text{Si}$ -MAS-NMR Investigations of Amino-Substituted Chloromethylpolysilanes .....	372
<i>Erica Brendler</i>	
Investigation of the Longitudinal Relaxation Time $T_1$ of Silanes .....	378
<i>Christina Notheis, Erica Brendler, Berthold Thomas</i>	
Ferrocene as a Donor in Dipolar Oligosilane Structures.....	384
<i>Christa Grogger, Harald Siegl, Hermann Rautz, Harald Stüger</i>	
Siloxene-Like Polymers: Networks.....	389
<i>Alois Kleewein, Harald Stüger, Stefan Tasch, Günther Leising</i>	
Silicon-Containing Spacers for the Synthesis of Tin-Containing Multidentate Lewis Acids.....	394
<i>Reiner Altmann, Olivier Gausset, Reinhard Hummeltenberg, Klaus Jurkschat, Silke Kühn, Markus Schürmann, Bernhard Zobel</i>	
Six-membered Stannyloligosilane Ring Systems — One Ring Size, Different Combination Pattern.....	399
<i>Uwe Hermann, Ingo Prass, Markus Schürmann, Frank Uhlig</i>	
Structure and Reactivity of Novel Stannasiloxane Complexes.....	404
<i>Jens Beckmann, Klaus Jurkschat, Markus Schürmann</i>	
Control of Distannoxane Structure by Silicon-Containing Spacers.....	409
<i>Klaus Jurkschat, Markus Schürmann, Marcus Schulte</i>	

The Influence of Intramolecular Coordination and Ring Strain on the Polymerization Potential of Cyclic Stannasiloxanes .....	413
<i>Jens Beckmann, Klaus Jurkschat, Nicole Pieper, Stephanie Rabe, Markus Schürmann Dieter Schollmeyer</i>	
Unconventional Solvents for Hydrolysis of Tetramethoxysilane .....	421
<i>Petra E. Ritzenhoff, Heinrich C. Marsmann</i>	
Reactions of Siloxysilanes with Alkali Metal Trimethylsilanolates .....	424
<i>J. Harloff, E. Popowski, A. Tillack</i>	
Cyclopentadienyl (Cp)-Substituted Silanetriols and Novel Titanasiloxanes as Condensation Products .....	430
<i>Manuela Schneider, Beate Neumann, Hans-Georg Stammer, Peter Jutzi</i>	
Metal-Fragment Substituted Disilanols .....	437
<i>Wolfgang Malisch, Heinrich Jehle, Markku Lager, Martin Nieger</i>	
Dicobaltoctacarbonyl-Assisted Synthesis of Ferriosilanols .....	442
<i>Wolfgang Malisch, Matthias Vögler</i>	
Novel Silanols and Siloxanes Substituted with the Ferriomethyl Fragment Cp(OC) <sub>2</sub> FeCH <sub>2</sub> .....	446
<i>Wolfgang Malisch, Marco Hofmann, Martin Nieger</i>	
Cyclosiloxanes with Si–Si–O and Si–O Groups .....	451
<i>Christian Wendler, Helmut Reinke, Hans Kelling</i>	
Syntheses, Structures, and Properties of Zwitterionic Monocyclic $\lambda^5$ Si-Silicates .....	456
<i>Reiner Willeke, Ruth E. Neugebauer, Melanie Pülm, Olaf Dannappel, Reinhold Tacke</i>	
Isomerization of Chiral Zwitterionic Monocyclic $\lambda^5$ Si-Silicates .....	460
<i>Ruth E. Neugebauer, Rüdiger Bertermann, Reinhold Tacke</i>	
Zwitterionic Spirocyclic $\lambda^5$ Si-Silicates Containing Diolato(2–) Ligands Derived from Acetohydroximic Acid and Benzohydroximic Acid .....	468
<i>Andreas Biller, Brigitte Pfrommer, Melanie Pülm, Reinhold Tacke</i>	
Isoelectronic Zwitterionic Pentacoordinate Silicon Compounds with SiO <sub>4</sub> C and SiO <sub>5</sub> Frameworks .....	473
<i>Birgitte Pfrommer, Reinhold Tacke</i>	
The Zwitterionic Spirocyclic $\lambda^5$ Si-Silicate [(Dimethylammonio)methyl]bis-[salicylato(2–)-O <sup>1</sup> ,O <sup>3</sup> ]silicate: Experimental and Computational Studies .....	478
<i>Melanie Pülm, Reiner Willeke, Reinhold Tacke</i>	
Oxygen, Phosphorus or Sulfur Donor Ligands in Higher-Coordinated Organosilyl Chlorides and Triflates .....	489
<i>U. H. Berlekamp, A. Mix, P. Jutzi, H. G. Stammer, B. Neumann</i>	

---

Coupling Constants through a Rapidly Dissociating-Recombining N→Si Dative Bond in Pentacoordinate Silicon Chelates .....	494
<i>Inna Kalikhman, Sonia Krivonos, Daniel Kost, Thomas Kottke, Dietmar Stalke</i>	
Salen–Silicon Complexes — a New Type of Hexacoordinate Silicon .....	500
<i>Jörg Haberecht, Frank Mucha, Uwe Böhme, Gerhard Roewer</i>	
Photoluminescence of Organically Modified Cyclosiloxanes .....	505
<i>Udo Pernisz, Norbert Auner</i>	
Octasilsesquioxanes as Traps for Atomic Hydrogen at Room Temperature .....	521
<i>Michael Päch, Reinhard Stöfßer</i>	
Highly Functionalized Octasilsesquioxanes Synthesis, Structure and Reactivity .....	526
<i>Michael Rattay, Peter Jutzi, Dieter Fenske</i>	
Synthesis and Characterization of Chloro-, Allyl- and Ferrocenyl- Substituted Silsesquioxanes ...	531
<i>Aslihan Mutluay, Peter Jutzi</i>	
Octakis(Dimethylphosphinoethyl)octasilasesquioxane: Synthesis, Characterization and Reactivity .....	536
<i>Sabine Lücke, Kai Lütke-Brochtrup, Karl Stoppek-Langner</i>	
Synthesis of Homo- and Mixed-Functionalized Octa-, Deca- and Dodeca-Silsesquioxanes by Cage Rearrangement and their Characterization.....	540
<i>Eckhard Rikowski</i>	
Synthesis of Polyhedral Hexa-, Octa-, Deca- and Dodeca-Silsesquioxanes Separation by NP-HPLC, SEC and LAC Characterization by MALDI-TOF-MS.....	545
<i>Ralph-Peter Krüger, Helmut Much, Günter Schulz, Eckhard Rikowski</i>	
Mixed Functionalized Octa(organylsilsesquioxanes) with Different Side Chains as Ligands for Metal Complexes .....	551
<i>Stefan M. J. Brodda, Heinrich C. Marsmann</i>	
Polymerization of Silanes with Platinum Metal Catalysts .....	554
<i>Christian Mechtler, Christoph Marschner</i>	
Polymorphism and Molecular Mobility of Poly(silane)s and Poly(silylenemethylene)s.....	558
<i>Christian Mueller, Claudia Schmidt, Florian Koopmann, Holger Frey</i>	
Synthesis, Functionalization and Cross-Linking Reactions of Poly(silylenemethylene)s .....	563
<i>Wolfram Uhlig</i>	
Highly Branched Polycarbosilanes: Preparation, Structure, and Functionality .....	569
<i>Christian Drohmann, Olga B. Gorbatshevich, Aziz M. Muzafarov, Martin Möller</i>	
Photoconductivity of C <sub>60</sub> -doped Poly(disilanyleneoligothienylene)s .....	581
<i>Masaya Kakimoto, Hideki Kashihara, Tohru Kashiwagi, Toshihiko Takiguchi</i>	

Application of Functionalized Polysilanes in Organic Light-Emitting Diodes .....	588
<i>Florian Lunzer, Christoph Marschner, Markus Wuchse, Stefan Tasch, Günther Leising</i>	
Commercial Hybrid Organic–Inorganic Polymers.....	592
<i>Barry Arkles</i>	
Inorganic–Organic Copolymers — Materials with a High Potential for Chemical Modification ...	613
<i>Klaus Rose, Sabine Amberg-Schwab, Matthias Heinrich</i>	
High Performance Silicon Polymer with Organoboron Structure.....	620
<i>Toshiya Sugimoto, Motokuni Ichitani, Koji Yonezawa, Kazuhiro Okada</i>	
Polydimethylsiloxane (PDMS): Environmental Fate and Effects.....	626
<i>Nicholas J. Fendinger</i>	
Silicones for the Textile Industry .....	639
<i>Michael Meßner</i>	
Poly-Functionalization of Polysiloxanes — New Industrial Opportunities.....	645
<i>Stefan Breunig, Josette Chardon, Nathalie Guennouni, Gerard Mignani, Philippe Olier, Andre van der Spuy, Carol Vergelati</i>	
The Use of a Silicone-Bonded Azo Dye as Chemical Proton Detector .....	659
<i>U. Müller, A. Utterodt</i>	
New Insights in the Influence of Oxygen on the Photocrosslinking of Silicone Acrylates .....	663
<i>U. Müller</i>	
Synthesis of New $\alpha,\omega$ -Olefinic Silicon-Containing Compounds via Cross-Metathesis.....	667
<i>O. Nuyken, K. Karlou-Eyrisch</i>	
The Science of Building Materials and the Repair of Buildings: Masonry Protection with Silicones .....	673
<i>Helmut Weber</i>	
What “Super” Spreads? — An Analysis of the Spreading Performance of the Single Components of the Trisiloxane Superspreader Type $M_2D-(CH_2)_3-(OCH_2CH_2)_n-OCH_3$ .....	683
<i>R. Wagner, Y. Wu, G. Czichocki, H. v. Berlepsch, B. Weiland, F. Rexin, L. Perepelittchenko</i>	
Trisiloxane Surfactants — Mechanisms of Spreading and Wetting .....	690
<i>Joachim Venzmer, Stephen P. Wilkowski</i>	
Silicone Rubbers Innovative — High Performance — Efficient .....	699
<i>Klaus Pohmer, Helmut Steinberger</i>	
The Fine Art of Molding: Flexible Molds of RTV-2 Silicone Rubber .....	710
<i>Georg Kollmann</i>	

Molecular Reactors Based on Organosilicon $\mu$ -Networks .....	726
<i>Manfred Schmidt, Olaf Emmerich, Christopher Roos, Karl Fischer, Frank Baumann, Bernd Deubzer, Johann Weis</i>	
Fine Silica: From Molecule to Particle: Quantum Chemical Modeling and Vibration Spectra Verification .....	730
<i>V. Khavryutchenko</i>	
Fumed Silica Structure and Particle Aggregation: Computational Modeling and Verification by Vibrational Spectroscopy .....	734
<i>V. Khavryutchenko, E. Nikitina, H. Barthel, J. Weis, E. Sheka</i>	
Mechanical Behavior of Polydimethylsiloxanes under Deformation. Quantum-Chemical View .....	739
<i>E. Nikitina, V. Khavryutchenko, E. Sheka, H. Barthel, J. Weis</i>	
Intermolecular Interactions of Polydimethylsiloxane Oligomers with Hydroxylated and Silylated Fumed Silica: Quantum Chemical Modeling .....	745
<i>E. Nikitina, V. Khavryutchenko, E. Sheka, H. Barthel, J. Weis</i>	
Adsorption of Polydimethylsiloxane on Hydrophilic and Silylated Fumed Silica. Investigations by Differential Scanning Calorimetry .....	763
<i>A. Altenbuchner, H. Barthel, T. Perisser, L. Rösch, J. Weis</i>	
Initial and Silylated Silica Surfaces: Assessing Polydimethylsiloxane – Silica Interactions Using Adsorption Techniques .....	773
<i>H. Balard, E. Papirer, A. Khalfi, H. Barthel, J. Weis</i>	
Modification of Porous Silicon Layers with Silanes .....	793
<i>G. Sperveslage, J. Grobe</i>	
In-Situ Controlled Deposition of Thin Silicon Films by Hot-Filament MOCVD with $(C_5Me_5)Si_2H_5$ and $(C_5Me_4H)SiH_3$ as Silicon Precursors .....	798
<i>F. Hamelmann, G. Haindl, J. Hartwich, U. Kleineberg, U. Heinzmann, A. Klipp, S. H. A. Petri, P. Jutzi</i>	
The Synthesis of Cyclopentadienyl Silanes and Disilanes and their Fragmentation under Thermal CVD Conditions .....	806
<i>A. Klipp, S. H. A. Petri, P. Jutzi, F. Hamelmann, U. Heinzmann</i>	
Novel Silyl-Carbodiimide Gels for the Preparation of Si/C/(N) Ceramics .....	812
<i>Edwin Kroke, Andreas O. Gabriel, Dong Seok Kim, Ralf Riedel</i>	
Thermodynamics, Kinetics and Catalysis in the System Ni–Si–H–Cl: Thermodynamic Description of Chlorine-Containing Silicides .....	818
<i>Jörg Acker, Klaus Bohmhammel, Gerhard Roewer</i>	

**XVIII** *Contents*

---

Author Index.....825

Subject Index.....829