

## Selected publications

- 1) K. Araki, N. Hashimoto, H. Otsuka, T. Nagasaki, S. Shinkai, Molecular Design of a Calix[6]arene-Based Super-Uranophile with C<sub>3</sub>-Symmetry. High UO<sub>2</sub><sup>2+</sup> Selectivity in Solvent Extraction, *Chem. Lett.*, 829-832 (1993).
- 2) H. Otsuka, K. Araki, S. Shinkai, Unequivocal Evidence for the Para-Substituent-through- the-Annulus Rotation in Calix[6]arene, *Chem. Expr.*, **8**, 479-482 (1993).
- 3) K. Araki, K. Inada, H. Otsuka, S. Shinkai, Conformational Isomerism in and Binding Properties to Alkali Metals and an Ammonium Salt of O-Alkylated Homooxacalix[3]arenes, *Tetrahedron*, **49**, 9465-9478 (1993).
- 4) K. Araki, N. Hashimoto, H. Otsuka, S. Shinkai, Synthesis and Ion Selectivity of Conformers Derived from Hexahomotrioxacalix[3]arene., *J. Org. Chem.*, **58**, 5958-5963 (1993).
- 5) H. Otsuka, K. Araki, T. Sakaki, K. Nakashima, S. Shinkai, Rotation vs. Immobilization Controversy in Calix[6]arenes. Is 5,11,17,23,29,35-Hexa-*tert*-butyl-37,39,41-trimethoxy-38,40,42-tris(*tert*-butoxycarbonylmethoxy) calix[6]arene Really Immobilized?, *Tetrahedron Lett.*, **34**, 7575-7578 (1993).
- 6) H. Otsuka, K. Araki, S. Shinkai, Syntheses of All Possible O-Methylation Products Derivable from 5,11,17,23,29,35-Hexa-*tert*-butylcalix[6]arene-37,38,39,40,41,42-hexol., *J. Org. Chem.*, **59**, 1542-1547 (1994).
- 7) K. Araki, K. Akao, H. Otsuka, K. Nakashima, F. Inokuchi, S. Shinkai, Immobilization of the Ring Inversion Motion in Calix[6]arene by a Cap with C<sub>3</sub>-Symmetry, *Chem. Lett.*, 1251-1254 (1994).
- 8) H. Otsuka, K. Araki, H. Matsumoto, T. Harada, S. Shinkai, Syntheses and NMR Spectroscopic Studies of Bridged and Capped Calix[6]arenes: High-Yield Syntheses of Unimolecular Caged Compounds from Calix[6]arene, *J. Org. Chem.*, **60**, 4862-4867 (1995).
- 9) H. Otsuka, K. Araki, S. Shinkai, Syntheses of All Possible Calix[6]arene Derivatives with MeO- and ROCOCH<sub>2</sub>O-Substituents and Their Metal Binding Properties, *Tetrahedron*, **51**, 8757-8770 (1995).
- 10) K. Araki, R. Nakamura, H. Otsuka, S. Shinkai, Metal-Induced Conformational Changes in Calix[6]arenes Can Change the Exchange Interaction between N-O· Radicals, *J. Chem. Soc., Chem. Commun.*, 2121-2122 (1995).
- 11) K. N. Koh, K. Araki, A. Ikeda, H. Otsuka, S. Shinkai, Reinvestigation of Calixarene-Based Artificial-Signaling Acetylcholine Receptors Useful in Neutral Aqueous(Water/Methanol) Solution., *J. Am. Chem. Soc.*, **118**, 755-758 (1996)
- 12) H. Otsuka, S. Shinkai, Definitive Evidence for Inhibition of Calix[6]arene Ring Inversion Obtained from a 1,3-Xylenyl-Bridged Chiral Calix[6]arene, *J. Am. Chem. Soc.*, **118**, 4271-4275 (1996).
- 13) Y. Suzuki, H. Otsuka, A. Ikeda, S. Shinkai, Thermodynamic Studies of Slow Metal Exchange Processes in Ionophoric Calix[n]arene with a Capsule-like Closed Cavity, *Tetrahedron Lett.*, **38**, 421-425 (1997).
- 14) H. Otsuka, S. Shinkai, Stereochemical Control of Calixarenes Useful as Rigid Conformationally Diversiform Platforms for Molecular Design, *Supramol. Sci.*, **3**, 189-207 (1997).
- 15) H. Otsuka, Y. Suzuki, A. Ikeda, K. Araki, S. Shinkai, Guest Inclusion Properties of Calix[6]arene-based Unimolecular Cage Compounds, On Their High Cs<sup>+</sup> and Ag<sup>+</sup> Selectivity and Very Slow Exchange Rates, *Tetrahedron*, **54**, 423-446 (1998).
- 16) H. Otsuka, T. Endo, Poly(hemiacetal ester)s: New Class of Polymers with Thermal Dissociative Units in the Main Chain, *Macromolecules*, **33**, 9059-9061 (1999)
- 17) H. Otsuka, H. Fujiwara, T. Endo, Thermal Dissociation Behavior of the Polymers with Hemiacetal Esters Moieties in the Side Chain: The Effect of Structure on Dissociation Temperature, *J. Polym. Sci., Part A: Polym. Chem.*, **37**, 4478-4482 (1999).

- 18) H. Otsuka, T. Sato, T. Endo, Synthesis and Controlled Polymerization of *p*-(1-Methylcyclohexyloxy)styrene and Quick-Response Deblocking Ability of the Obtained Polymer, *Macromol. Rapid Commun.*, **21**, 48-52 (2000).
- 19) H. Otsuka, I. Onozuka, T. Endo, Pinacol Rearrangement in the Polymer Backbone: New Class of Reactive Polymers with Condensed Benzopinacol Units in the Main Chain, *Tetrahedron Lett.*, **41**, 1433-1437 (2000).
- 20) H. Otsuka, H. Fujiwara, T. Endo, Fine Tuning of Thermal Dissociation Temperature in Copolymers with Hemiacetal Ester Moieties in the Side Chain: Effect of Comonomer Component on Dissociation Temperature, *React. Funct. Polym.*, **46**, 293-298 (2001).
- 21) H. Otsuka, K-i. Mori, T. Endo, Novel Reactive Polymers Containing Hemiacetal Ester and Vinyl Moieties: Synthesis and Selective Polymerization of 1-Methoxyallyl Methacrylate Derived from Methacrylic Acid and Methoxyallene, *Macromol. Rapid Commun.*, **22**, 1335-1339 (2001)
- 22) K. Yamamoto, H. Otsuka, S.-I. Wada, A. Takahara, Surface Modification of Aluminosilicate Nanofiber "Imogolite", *Chem. Lett.*, 1162-1163 (2001).
- 23) K. Yamamoto, H. Otsuka, S.-I. Wada, A. Takahara, Preparation of Novel (Polymer/Inorganic Nanofiber) Composite through Surface Modification of Natural Aluminosilicate Nanofiber, *J. Adhesion*, **78**, 591-602 (2002).
- 24) H. Otsuka, I. Onozuka, T. Shioya, T. Endo, Pinacol Rearrangement in the Polymer Backbone: Synthesis of Novel Reactive Polymers with Condensed Benzopinacol Units in the Main Chain and Their Complete Rearrangement to Poly(benzopinacolone)s, *Macromol. Chem. Phys.*, **203**, 1824-1832 (2002).
- 25) K. Koga, H. Otsuka, A. Takahara, Fabrication of Three-Component Micropatterned Organosilane Monolayer by a Stepwise Photolithography Process, *Chem. Lett.*, 1196-1197 (2002).
- 26) H. Otsuka, K. Aotani, Y. Higaki, A. Takahara, A Dynamic (Reversible) Covalent Polymer: Radical Crossover Behaviour of TEMPO-containing Poly(alkoxyamine ester)s, *Chem. Commun.*, 2838-2839 (2002).
- 27) T. Koga, M. Morita, H. Sakata, H. Otsuka, A. Takahara, Surface Structure and Properties of Multi-Component Micropatterned Organosilane Monolayers Prepared by Stepwise Photodecomposition and Chemisorption Process, *Int. J. Nanoscience*, **1**, 419-423 (2002).
- 28) Y. Higaki, H. Otsuka, T. Endo, A. Takahara, Polyurethane Macroinitiator for Controlled Monomer Insertion of Styrene, *Macromolecules*, **36**, 1494-1499 (2003).
- 29) R. Matsuno, K. Yamamoto, H. Otsuka, A. Takahara, Polystyrene-Grafted Magnetite Nanoparticles Prepared through Surface-Initiated Nitroxyl-Mediated Radical Polymerization, *Chem. Mater.*, **15**, 3-5 (2003).
- 30) H. Otsuka, K. Aotani, Y. Higaki, A. Takahara, Polymer Scrambling: Macromolecular Radical Crossover Reaction between the Main Chains of Alkoxyamine-Based Dynamic Covalent Polymers, *J. Am. Chem. Soc.*, **125**, 4064-4065 (2003).
- 31) N. Fujita, H. Otsuka, A. Takahara, S. Shinkai, Thin Silica Film with a Network Structure as Prepared by Surface Sol-Gel Transcription on the Poly(styrene-*b*-4-vinylpyridine) Polymer Film, *Chem. Lett.*, **32**, 352-353 (2003).
- 32) A. Takahara, H. Sakata, M. Morita, T. Koga, H. Otsuka, Fabrication and Characterization of Multi-component Organosilane Nanofilms Composite Interfaces, **10**, 489-504 (2003).
- 33) Y. Higaki, H. Otsuka, A. Takahara. Synthesis of Well-Defined Poly(styrene)-*b*-poly(*p*-*tert*-butoxystyrene) Multiblock Copolymer from Poly(alkoxyamine) Macroinitiator, *Polymer*, **44**, 7095-7101(2003).
- 34) Y. Higaki, H. Otsuka, A. Takahara, Dynamic Formation of Graft Copolymers via Radical Crossover Reaction of Alkoxyamines, *Macromolecules*, **37**, 1696-1701 (2004).
- 35) R. Matsuno, H. Otsuka, A. Takahara, Polystyrene- and Poly(3-vinylpyridine)-Grafted Magnetite Nanoparticles Prepared through Surface-Initiated Nitroxide-Mediated Radical Polymerization, *Macromolecules*, **37**, 2203-2209 (2004).

- 36) N. Hosaka, K. Tanaka, H. Otsuka, A. Takahara, Influence of the Addition of Silsesquioxane on the Dewetting Behavior of Polystyrene Thin Film, *Composite Interfaces*, **11**, 297-306 (2004).
- 37) T. Koga, M. Morita, H. Ishida, H. Yakabe, S. Sasaki, O. Sakata, H. Otsuka, A. Takahara, Dependence of the Molecular Aggregation State of Octadecylsiloxane Monolayers on Preparation Methods, *Langmuir*, **21**, 905-910 (2005).
- 38) M. Morita, T. Koga, H. Otsuka, A. Takahara, Macroscopic-Wetting Anisotropy on the Line-Patterned Surface of Fluoroalkylsilane Monolayers, *Langmuir*, **21**, 911-918 (2005).
- 39) A. Yanagi, H. Otsuka, A. Takahara, Adsorption of Di-*n*-butyl Phthalate by Chitosan Beads Modified with Water-soluble Calixarenes, *Chem. Lett.*, **34**, 218-219 (2005).
- 40) H. Ishida, T. Koga, M. Morita, H. Otsuka, A. Takahara, Macro- and nanotribological properties of organosilane monolayers prepared by a chemical vapor adsorption method on silicon substrates, *Tribology Lett.*, **19**, 3-8 (2005).
- 41) A. Takahara, M. Hadano, T. Yamaguchi, H. Otsuka, S. Kidoaki, T. Matsuda, Characterization of Novel Bio-degradable Segmented Polyurethanes Prepared from Amino-acid Based Diisocyanate, *Macromol. Symp.*, **224**, 207-217 (2005).
- 42) K. Honda, M. Morita, H. Otsuka, A. Takahara, Molecular Aggregation Structure and Surface Properties of Poly(fluoroalkyl acrylate) Thin Films, *Macromolecules*, **38**, 5699-5705 (2005).
- 43) K. Honda, H. Yakabe, T. Koga, S. Sasaki, O. Sakata, H. Otsuka, A. Takahara, Molecular Aggregation Structure of Poly(fluoroalkyl acrylate) Thin Films Evaluated by Synchrotron-Sourced Grazing-Incidence X-ray Diffraction, *Chem. Lett.*, **34**, 1024-1025 (2005).
- 44) H. Otsuka, T. Arima, T. Koga, A. Takahara, Rational Model for Chiral Recognition in a Silica-based Chiral Column: Chiral Recognition of N-(3,5-dinitrobenzoyl)phenylglycine-terminated Alkylsilane Monolayer by 2,2,2-Trifluoro-1-(9-anthryl)ethanol Derivatives by Chemical Force Microscopy, *J. Phys. Org. Chem.*, **18**, 957-961 (2005).
- 45) G. Yamaguchi, Y. Higaki, H. Otsuka, A. Takahara, Reversible Radical Ring-Crossover Polymerization of an Alkoxyamine-Containing Dynamic Covalent Macrocyclic, *Macromolecules*, **38**, 6316-6320 (2005).
- 46) T. Koga, H. Otsuka, A. Takahara, Imaging of Charged Micropatterned Monolayer Surfaces by Chemical Force Microscopy, *Bull. Chem. Soc. Jpn.*, **78**, 1691-1698 (2005).
- 47) K. Yamamoto, H. Otsuka, S.-I. Wada, D. Sohn, A. Takahara, Transparent Polymer Nanohybrid Prepared by in situ Synthesis of Aluminosilicate Nanofibers in Poly(vinyl alcohol) Solution, *Soft Matter*, **1**, 372-377 (2005).
- 48) H. Sakata, M. Kobayashi, H. Otsuka, A. Takahara, Tribological Properties of Poly(methyl methacrylate) Brushes Prepared by Surface-Initiated Atom Transfer Radical Polymerization, *Polym. J.*, **36**, 765-775 (2005).
- 49) A. Yanagi, H. Otsuka, A. Takahara, Adsorbent for Di-*n*-butyl Phthalate using Chitosan Beads with Upper- or Lower-Rim Substituted Water-soluble Calixarenes, *Polym. J.*, **36**, 939-945 (2005).
- 50) K. Yamamoto, H. Otsuka, S.-I. Wada, D. Sohn, A. Takahara, Preparation and Properties of [Poly(methyl methacrylate)/Imogolite] Hybrid via Surface Modification using Phosphoric Acid Ester, *Polymer*, **46**, 12386-12392 (2005).
- 51) N. Inoue, H. Otsuka, S.-I. Wada, A. Takahara, (Inorganic Nanofiber/Enzyme) Hybrid Hydrogel: Preparation, Characterization, and Enzyme Activity of Imogolite/Pepsin Conjugate, *Chem. Lett.*, **35**, 194-195 (2006).
- 52) Y. Higaki, H. Otsuka, A. Takahara, A Thermodynamic Polymer Cross-linking System Based on Radically Exchangeable Covalent Bonds, *Macromolecules*, **39**, 2121-2125 (2006).
- 53) R. Matsuno, H. Otsuka, A. Takahara, Polystyrene-Grafted Titanium Oxide Nanoparticles Prepared through Surface-Initiated Nitroxide-Mediated Radical Polymerization and Their Application to Polymer Hybrid Thin Films,

*Soft Matter*, **2**, 415-421 (2006).

- 54) Y. Higaki, H. Otsuka, A. Takahara, Facile Synthesis of Multiblock Copolymers Composed of Poly(tetramethylene oxide) and Polystyrene using Living Free-radical Polymerization Macroinitiator, *Polymer*, **47**, 3784-3791 (2006).
- 55) K. Miyamoto, N. Hosaka, H. Otsuka, A. Takahara, Stabilization of Polystyrene Thin Films against Dewetting by Silsesquioxane-terminated Polystyrene Additives, *Chem. Lett.*, **35**, 1098-1099 (2006).
- 56) T. Akinaga, S. Yasutake, S. Sasaki, O. Sakata, H. Otsuka, A. Takahara, Analysis of Molecular Aggregation States in Pentacene Thin Films Prepared from Soluble Precursor, *Chem. Lett.*, **35**, 1098-1099 (2006).
- 57) M. Koabayashi, R. Matsuno, H. Otsuka, A. Takahara, Precise Surface Structure Control of Inorganic Solid and Metal Oxide Nanoparticles through Surface-initiated Radical Polymerization, *Sci. Tech. Adv. Mater.*, **7**, 617-628 (2006).
- 58) K. Yamamoto, H. Otsuka, A. Takahara, Preparation of Novel Polymer Hybrids from Imogolite Nanofiber, *Polymer J.*, **39**, 1 (2007).
- 59) N. Hosaka, N. Torikai, H. Otsuka, A. Takahara, Structure and Dewetting Behavior of Polyhedral Oligomeric Silsesquioxane-Filled Polystyrene Thin Films, *Langmuir*, **23**, 902-907 (2007).
- 60) H. Otsuka, K. Aotani, Y. Higaki, Y. Amamoto, A. Takahara, Thermal Reorganization and Molecular Weight Control of Dynamic Covalent Polymers Containing Alkoxyamines in Their Main Chains, *Macromolecules*, 1429-1434, **40**, (2007).
- 61) Y. Amamoto, Y. Higaki, Y. Matsuda, H. Otsuka, A. Takahara, Programmed Formation of Nanogels via a Radical Crossover Reaction of Complementarily Reactive Diblock Copolymers, *Chem. Lett.*, **35**, 1098-1099 (2007).
- 62) Y. Amamoto, Y. Higaki, Y. Matsuda, H. Otsuka, A. Takahara, Programmed Thermodynamic Formation and Structure Analysis of Star-like Nanogels with Core Cross-linked by Thermally Exchangeable Dynamic Covalent Bonds, *J. Am. Chem. Soc.*, **129**, 13298-13304 (2007).
- 63) K. Miyamoto, N. Hosaka, M. Kobayashi, H. Otsuka, N. Yamada, N. Torikai, A. Takahara, Dewetting Inhibition and Interfacial Structures of Silsesquioxane-terminated Polystyrene Thin Films, *Polym. J.*, **39**, 1247-1252 (2007).
- 64) N. Hosaka, N. Torikai, Masahiro Hino, H. Otsuka, A. Takahara, Control of Dispersion State of Silsesquioxane Nanofillers for Stabilization of Polystyrene Thin Films, *Langmuir*, **24**, 5766-5772 (2008).
- 65) N. Jiravanichanun, K. Yamamoto, H. Yonemura, S. Yamada, H. Otsuka, A. Takahara, Fabrication of Conjugated Polymer Hybrid Thin Films with Radially Oriented Aluminosilicate Nanofibers by Spin-Assembly, *Bull. Chem. Soc. Jpn.*, **81**, 1663-1668 (2008).
- 66) Y. Amamoto, T. Maeda, M. Kikuchi, H. Otsuka, A. Takahara, Rational Approach to Star-like Nanogels with Different Arm Lengths: Formation by Dynamic Covalent Exchange and Their Imaging *Chem. Commun.*, 689-691 (2009).
- 67) H. Otsuka, T. Muta, M. Sakada, T. Maeda, A. Takahara, Scrambling Reaction between Polymers Prepared by Step-growth and Chain-growth Polymerizations: Macromolecular Cross-metathesis between 1,4-Polybutadiene and Olefin-containing Polyester, *Chem. Commun.*, 1073-1076 (2009).
- 68) N. Jiravanichanun, K. Yamamoto, A. Irie, H. Otsuka, A. Takahara, Preparation of Hybrid Films of Aluminosilicate Nanofiber and Conjugated Polymer, *Synth. Metals*, **159**, 885-888 (2009).
- 69) T. Maeda, H. Otsuka, A. Takahara, Dynamic Covalent Polymers: Reorganizable Polymers with Dynamic Covalent Bonds, *Prog. Polym. Sci.*, **34**, 581-604 (2009).
- 70) H. Yukutake, M. Kobayashi, H. Otsuka, A. Takahara, Thermal Degradation Behavior of Polystyrene/magadiite Nanocomposites prepared by Surface-initiated Nitroxide-mediated Radical Polymerization, *Polym. J.*, **41**, 555-561 (2009).

- 71) W. O. Yah, Z. Wang, H. Otsuka, K. Kato, J. Kim, M. Takata, A. Takahara, Molecular Aggregation State and Photovoltaic Properties of Chlorophyll-Doped Conducting Poly(3-hexylthiophene)/MCM-41 Nanocomposites, *ACS Appl. Mater. Interfaces*, **1**, 1544-1552 (2009).
- 72) Y. Amamoto, H. Otsuka, A. Takahara, Formation of Polystyrene/Poly(methyl methacrylate) Heteroarm Star-Like Nanogels from Complementarily Reactive Well-Defined Diblock Copolymers, *J. Phys.: Conf. Ser.*, **184**, 012019 (2009).
- 73) H. Otsuka, Y. Amamoto, Y. Matsuda, T. Maeda, A. Takahara, Synthesis and Reaction of Well-defined Copolymers with Thermally Exchangeable Dynamic Covalent Bonds in the Side Chains, *ACS symposium Series Book: 1024(Controlled/Living Radical Polymerization: Progress in RAFT, DT, NMP & OMRP)*, American Chemical Society, 319-329 (2009).
- 74) T. Maeda, H. Otsuka, A. Takahara, Dynamic Combinatorial Chemistry in Materials Science, *Dynamic Combinatorial Chemistry in Drug Delivery, Bioorganic Chemistry and Materials Science*, Wiley & Sons, p229-260 (2009).
- 75) Y. Amamoto, M. Kikuchi, H. Masunaga, S. Sasaki, H. Otsuka, A. Takahara, Reorganizable Chemical Polymer Gels Based on Dynamic Covalent Exchange and Controlled Monomer Insertion, *Macromolecules*, **42**, 8733-8738 (2009).
- 76) H. Otsuka, A. Takahara, Structure and Properties of Imogolite Nanotubes and Their Application to Polymer Nanocomposites, T. Kijima Ed. *Inorganic and Metallic Nanotubular Materials*, **117**, 169-190 (2010).
- 77) H. Otsuka, S. Nagano, Y. Kobashi, T. Maeda, A. Takahara, A Dynamic Covalent Polymer Driven by Disulfide Metathesis under Photoirradiation, *Chem. Commun.*, 46, 1150-1152 (2010).
- 78) Y. Amamoto, M. Kikuchi, H. Masunaga, S. Sasaki, H. Otsuka, A. Takahara, Intelligent Build-Up of Complementarily Reactive Diblock Copolymers via Dynamic Covalent Exchange toward Symmetrical and Miktoarm Star-like Nanogels, *Macromolecules*, **43**, 1785-1791 (2010).
- 79) W. O. Yah, K. Yamamoto, N. Jiravanichanun, H. Otsuka, A. Takahara, Imogolite Reinforced Nanocomposites: Multifaceted Green Materials, *Materials*, **3**, 1709-1745 (2010).
- 80) Y. Amamoto, M. Kikuchi, H. Otsuka, A. Takahara, Solvent-Controlled Formation of Star-like Nanogels via Dynamic Covalent Exchange of PSt-b-PMMA Diblock Copolymers with Alkoxyamine Units in the Side Chain, *Macromolecules*, **43**, 5470-5473 (2010).
- 81) H. Yukutake, M. Kobayashi, H. Otsuka, A. Takahara, Influence of Magadiite Dispersion States on the Flammability of Polystyrene and Polyphenylene Ether-Polystyrene Alloy Nanocomposites, *Polym. J.*, **42**, 223-231 (2010).
- 82) Y. Amamoto, M. Kikuchi, H. Otsuka, A. Takahara, Arm-replaceable Star-like Nanogels: Arm Detachment and Arm Exchange Reactions by Dynamic Covalent Exchanges of Alkoxyamine Units, *Polym. J.*, **42**, 1209-1211 (2010).
- 83) T. Sato, Y. Amamoto, H. Yamaguchi, H. Otsuka, A. Takahara, "Substitutable" Polymer Brushes: Reactive Poly(methacrylate) Brushes with Exchangeable Alkoxyamine Units in the Side Chain, *Chem. Lett.*, **39**, 1209-1211 (2010).
- 84) Y. Amamoto, H. Otsuka, A. Takahara, Synthesis and Characterization of Polymeric Nanogels, Challa S. S. R. Kumar Ed., *Polymeric Nanomaterials*, Wiley, (2011).
- 85) Y. Amamoto, J. Kamada, H. Otsuka, A. Takahara, K. Matyjaszewski, Repeatable Photoinduced Self-Healing of Covalently Cross-Linked Polymers through Reshuffling of Trithiocarbonate Units, *Angew. Chem. Int. Ed.*, **50**, 1660-1663 (2011).
- 86) Y. Amamoto, M. Kikuchi, H. Masunaga, H. Ogawa, S. Sasaki, H. Otsuka, A. Takahara, Mesh-Size Control and Functionalization of Reorganizable Chemical Gels by Monomer Insertion into Their Cross-Linking Points, *Polym. Chem.*, **2**, 957-962 (2011).

- 87) W. Ma, J. Kim, H. Otsuka, A. Takahara, Surface Modification of Individual Imogolite Nanotubes with Alkyl Phosphate from an Aqueous Solution, *Chem. Lett.*, **40**, 159 (2011).
- 88) W. Ma, H. Otsuka, A. Takahara, Poly(methyl methacrylate) Grafted Imogolite Nanotubes Prepared through Surface-initiated ARGET ATRP, *Chem. Commun.*, **47**, 5813-5815 (2011).
- 89) W. O. Yah, A. Irie, N. Jiravanichanun, H. Otsuka, A. Takahara, Molecular Aggregation State and Electrical Properties of Terthiophenes/Imogolite Nanohybrids, *Bull. Chem. Soc. Jpn.*, **84**, 893-902 (2011). [Award Article]
- 90) S. Jing, Y. Amamoto, M. Nishihara, A. Takahara, H. Otsuka, Reversible Cross-linking of Hydrophilic Dynamic Covalent Polymers with Radically Exchangeable Alkoxyamines in Aqueous Media, *Polym. Chem.*, **2**, 2021-2026 (2011).
- 91) R.-X. Li, S.-M. Liu, J.-Q. Zhao, H. Otsuka, A. Takahara, Preparation and Characterization of Cross-linked Beta-cyclodextrin Polymer/Fe<sub>3</sub>O<sub>4</sub> Composite Nanoparticles with Core-shell Structures, *Chinese Chem. Lett.*, **22**, 217-220 (2011).
- 92) W. Ma, H. Otsuka, A. Takahara, Preparation and Properties of PVC/PMMA-g-imogolite Nanohybrid via Surface-Initiated Radical Polymerization, *Polymer*, **52**, 5543-5550 (2011).
- 93) K. Imato, M. Nishihara, T. Kanehara, Y. Amamoto, A. Takahara, H. Otsuka, Self-healing of Chemical Gels Cross-linked by Diarylbibenzofuranone-based Trigger-free Dynamic Covalent Bonds at Room Temperature, *Angew. Chem. Int. Ed.* **51**, 1138-1142 (2012).
- 94) N. Jiravanichanun, K. Yamamoto, K. Kato, J. Kim, S. Horiuchi, W. O. Yah, H. Otsuka, A. Takahara, Preparation and Characterization of Imogolite/DNA Hybrid Hydrogels, *Biomacromolecules*, **13**, 276-281 (2012).
- 95) W. Ma, W. O. Yah, H. Otsuka, A. Takahara, Surface Functionalization of Aluminosilicate Nanotubes with Organic Molecules, *Beilstein J. Nanotechnol.* **3**, 82-100 (2012).
- 96) H. Xu, J. Nishida, W. Ma, H. Wu, M. Kobayashi, H. Otsuka, A. Takahara, Competition between Oxidation and Coordination in Cross-linking of Polystyrene Copolymer Containing Catechol Groups, *ACS Macro Lett.*, **1**, 457-460, (2012).
- 97) Y. Amamoto, H. Otsuka, A. Takahara, K. Matyjaszewski, Changes in Network Structure of Chemical Gels Controlled by Solvent Quality through Photoinduced Radical Reshuffling Reactions of Trithiocarbonate Units, *ACS Macro Lett.*, **1**, 478-481, (2012).
- 98) W. Ma, W. O. Yah, H. Otsuka, A. Takahara, Application of Imogolite Clay Nanotubes in Organic/Inorganic Nanohybrid Materials, *J. Mater. Chem.*, **22**, 11887-11892 (2012).
- 99) W. Ma, H. Wu, Y. Higaki, H. Otsuka, A. Takahara, A "Non-sticky" Superhydrophobic Surface by Self-assembly of Fluoroalkyl Phosphonic Acid on a Hierarchically Micro/nanostructured Alumina Gel Film, *Chem. Commun.*, **48**, 6824-6826 (2012).
- 100) Y. Amamoto, H. Otsuka, A. Takahara, K. Matyjaszewski, Self-Healing of Covalently Cross-Linked Polymers by Reshuffling Thiuram Disulfide Moieties in Air under Visible Light, *Adv. Mater.*, **24**, 3975-3980 (2012).
- 101) T. Sato, Y. Amamoto, H. Yamaguchi, T. Ohishi, A. Takahara, H. Otsuka, Dynamic Covalent Polymer Brushes: Reversible Surface Modification of Reactive Polymer Brushes with Alkoxyamine-based Dynamic Covalent Bonds, *Polym. Chem.*, **3**, 3077-3083 (2012).
- 102) W. Ma, Y. Higaki, H. Otsuka, A. Takahara, Perfluoropolyether-infused Nano-texture: A Versatile Approach to Omniphobic Coatings with Low Hysteresis and High Transparency, *Chem. Commun.*, **49**, 597-599 (2013).
- 103) H. Xu, J. Nishida, H. Wu, Y. Higaki, H. Otsuka, N. Ohta, A. Takahara, Structural Effects of Catechol-Containing Polystyrene Gels Based on Dual Cross-linking Approach, *Soft Matter*, **9**, 1967-1974, (2013).
- 104) R. Watari, M. Nishihara, H. Tajiri, H. Otsuka, A. Takahara, Preparation of Novel Polyimide Hybrid Materials by

- Multi-Layered Charge-Transfer Complex Formation, *Polym. J.*, **45**, 839-844 (2013).
- 105) H. Jing, Y. Higaki, W. Ma, H. Wu, W. O. Yah, H. Otsuka, Y. M. Lvov, A. Takahara, Internally Modified Halloysite Nanotubes as Inorganic Nanocontainers for a Flame Retardant, *Chem. Lett.*, **42**, 121-123 (2013).
- 106) M. Nishihara, K. Imato, A. Irie, T. Kanehara, A. Kano, A. Maruyama, A. Takahara, H. Otsuka, Reversibly Crosslinked Polymeric Micelles Formed by Autonomously Exchangeable Dynamic Covalent Bonds, *Chem. Lett.*, **42**, 377-379 (2013).
- 107) H. Otsuka, Reorganization of Polymer Structures Based on Dynamic Covalent Chemistry: Polymer Reactions by Dynamic Covalent Exchanges of Alkoxyamine Units, *Polym. J.*, **45**, 879-891 (2013).
- 108) T. Ohishi, Y. Iki, K. Imato, Y. Higaki, A. Takahara, H. Otsuka, Insertion Metathesis Depolymerization of Aromatic-Disulfide-Containing Dynamic Covalent Polymers under Weak Intensity Photoirradiation, *Chem. Lett.*, **42**, 1346-1348 (2013).
- 109) H. Otsuka, Self-healing Polymers, *McGraw-Hill Yearbook of Science and Technology 2014*, McGraw-Hill Education, pp337-340 (2014).
- 110) J. Su, Y. Amamoto, T. Sato, M. Kume, T. Inada, T. Ohishi, Y. Higaki, A. Takahara, H. Otsuka, Reversible Cross-linking Reactions of Alkoxyamine-appended Polymers under Bulk Conditions for Transition between Flow and Rubber-like State, *Polymer*, **55**, 1474-1480 (2014).
- 111) A. Takahara, H. Jing, Y. Higaki, H. Otsuka, W. Ma, H. Jinnai, J. Xi, Preparation and Characterization of Polycarbonate Nanocomposites Based on Surface-modified Halloysite Nanotube, *Polym. J.*, **46**, 307-312 (2014).
- 112) T. Sato, Y. Amamoto, T. Ohishi, Y. Higaki, A. Takahara, H. Otsuka, Radical Crossover Reactions of a Dynamic Covalent Polymer Brush for Reversible Hydrophilicity Control, *Polymer*, **55**, 4586-4592 (2014).
- 113) J. Su, K. Imato, T. Sato, T. Ohishi, A. Takahara, H. Otsuka, Plasticizer-Promoted Thermal Cross-linking of a Dynamic Covalent Polymer with Complementarily Reactive Alkoxyamine Units in the Side Chain under Bulk Conditions, *Bull. Chem. Soc. Jpn.*, **87**, 1023-1025 (2014).
- 114) K. Imato, T. Ohishi, M. Nishihara, A. Takahara, H. Otsuka, Network Reorganization of Dynamic Covalent Polymer Gels with Exchangeable Diarylbibenzofuranone at Ambient Temperature, *J. Am. Chem. Soc.*, **136**, 11839-11845 (2014).
- 115) H. Jing, Y. Higaki, T. Ishikawa, K. L. White, H. Otsuka, A. Takahara, Polyurethane Nanocomposites Reinforced with Surface Modified Halloysite Nanotubes, *Sci. Adv. Mater.*, **7**, 974-980 (2015).
- 116) T. Maeda, S. Kamimura, T. Ohishi, A. Takahara, H. Otsuka, Synthesis of Polyethylene/polyester Copolymers through Main Chain Exchange Reactions via Olefin Metathesis, *Polymer*, **55**, 6245-6251 (2014).
- 117) H. Otsuka, T. Ohishi, Dynamic Covalent PN (Polymer Nanomaterials), S. Kobayashi, K. Müllen Eds, *Encyclopedia of Polymeric Nanomaterials*, Springer, pp 636-641 (2015).
- 118) T. Ohishi, H. Otsuka, PET (Poly(ethylene terephthalate)) & PTT (Poly(trimethylene terephthalate)), S. Kobayashi, K. Müllen Eds, *Encyclopedia of Polymeric Nanomaterials*, Springer, pp 1534-1538 (2015).
- 119) K. Imato, A. Irie, T. Kosuge, T. Ohishi, M. Nishihara, A. Takahara, H. Otsuka, Mechanophores with a Reversible Radical System and Freezing-Induced Mechanochemistry in Polymer Solutions and Gels, *Angew. Chem. Int. Ed.*, **54**, 6168-6172 (2015).
- 120) K. Imato, A. Takahara, H. Otsuka, Self-Healing of a Cross-Linked Polymer with Dynamic Covalent Linkages at Mild Temperature and Evaluation at Macroscopic and Molecular Levels, *Macromolecules*, **48**, 5632-5639 (2015).
- 121) T. Ohishi, K. Suyama, S. Kamimura, M. Sakada, K. Imato, S. Kawahara, A. Takahara, H. Otsuka, Metathesis-driven Scrambling Reactions between Polybutadiene or Naturally Occurring Polyisoprene and Olefin-containing Polyurethane, *Polymer*, **78**, 145-153 (2015).

- 122) K. Imato, M. Nishihara, A. Irie, A. Takahara, H. Otsuka, Diarylbibenzofuranone-Based Dynamic Covalent Polymer Gels Prepared via Radical Polymerization and Subsequent Polymer Reaction, *Gels*, **1**, 58–68 (2015).
- 123) K. Imato, T. Kanehara, T. Ohishi, M. Nishihara, H. Yajima, M. Ito, A. Takahara, H. Otsuka, Mechanochromic Dynamic Covalent Elastomers: Quantitative Stress Evaluation and Autonomous Recovery, *ACS Macro Lett.*, *ACS Macro Lett.*, **4**, 1307–1311 (2015).
- 124) T. Sato, T. Ohishi, Y. Higaki, A. Takahara, H. Otsuka, Radical Crossover Reactions of Alkoxyamine-Based Dynamic Covalent Polymer Brushes on Nanoparticles and the Effect on Their Dispersibility, *Polym. J.*, in press.
- 125) R. Yoneyama, T. Sato, K. Imato, T. Kosuge, T. Ohishi, Y. Higaki, A. Takahara, H. Otsuka, Autonomously Substitutable Organosilane Thin Films Based on Dynamic Covalent Diarylbibenzofuranone Units, *Chem. Lett.*, in press.
- 126) A. Takahashi, T. Ohishi, R. Goseki, H. Otsuka Degradable Epoxy Resins Prepared from Diepoxide Monomer with Dynamic Covalent Disulfide Linkage, *Polymer*, in press.