Yuji Higaki

Institute for Materials Chemistry and Engineering
Kyushu University
744 Motooka, Nishi-ku, Fukuoka 819-0395, Japan
TEL: +81-92-802-2516 **FAX:** +81-92-802-2518
e-mail: y-higaki@cstf.kyushu-u.ac.jp
Homepage: http://takahara.ifoc.kyushu-u.ac.jp/

Education:

B. Eng. Applied Chemistry, Kyushu University, 2001
M. Eng. Applied Chemistry, Kyushu University, 2003
D. Eng. Applied Chemistry, Kyushu University, 2006

Professional Career:

2003-2006	Research Fellow of Japan Society for the Promotion of Science
2006-2011	Teijin Co. Ltd.
2011-present	Assistant Professor
	(Institute for Materials Chemistry and Engineering, Kyushu University)
2012-present	RIKEN Visiting Scientist (concurrent)
2012-present	WPI I^2CNER Researcher (concurrent)
2013-2014	JST ERATO Takahara Soft Interfaces Project Group Leader (concurrent)

Academic Societies:

- The Society of Polymer Science, Japan
- The Society of Fiber Science and Technology, Japan
- The Society of Rubber Science and Technology, Japan
- The Adhesion Society of Japan
- The Materials Research Society of Japan
- The Japanese Society for Synchrotron Radiation Research

Awards:

- Award for Encouragement of Research in Polymer Science, the Society of Polymer Science, Japan (2014. 5)
- Award for Encouragement of Research in IUMRS-ICAM2014 (2014. 9)
- The Excellent Presentation Award in the Annual Meeting, The Society of Fiber Science and Technology, Japan (2015.6)
- Award for Encouragement of Research in the 25th Annual Meeting of MRS-J (2015.12)

- IUMRS-ICAM2017 Young Scientist Award GOLD AWARD (2017.8)

Research Fields

- Polymer Surface/Interface, Polymer Structure and Physics

Main Research Topic

- Surface/ Interface Properties and the Hydration States of Charged Polymer Brushes
- Molecular Aggregation Structure of Polymer Micro-Articles and the Structure Evolution Process
- Mechanics and Hierarchical Structure Evolution of Elastomers and Polymer Composite Materials in the Deformation Process

Teaching

- Research supervisor of graduate and under-graduate students including foreign students from U.S.A., China, Taiwan, Korea, Thailand, Indonesia.
- Bachelor Student Class (Basic Science of Polymer Chemistry and Physics; Scientific English)

Publications:

1. Yuji Higaki, Yoshihiro Inutsuka, Tatsunori Sakamaki, Yuki Terayama, Ai Takenaka, Keiko Higaki, Norifumi L. Yamada, Taro Moriwaki, Yuka Ikemoto, Atsushi Takahara
   "Effect of Charged Group Spacer Length on Hydration State in Zwitterionic Poly(sulfobetaine) Brushes"
   Langmuir, **33**, 8404-8412 (2017)
   This paper was selected as ACS Editor's Choice

2. Yuji Higaki, Ken Suzuki, Yudai Kiyoshima, Tomoyuki Toda, Masayoshi Nishiura, Noboru Ohta, Hiroyasu Masunaga, Zhaomin Hou, and Atsushi Takahara
   "Molecular Aggregation States and Physical Properties of Syndiotactic Polystyrene/Hydrogenated Polyisoprene Multiblock Copolymers with Crystalline Hard Domain"
   Macromolecules, **50**, 6184-6191 (2017)

3. Hui Wu, Yuji Higaki, Shiki Nojima, Atsushi Takahara
   "Orientation and Crystallization of Regioregular Poly(3-dodecylthiophene) in Alumina Nanopores"
   Soft Matter, **13**, 4661-4666 (2017)

4. Kyung-Lynne Park, Wei Ma, Yuji Higaki, and Atsushi Takahara
   "Mechanically Enhanced Hyaluronic Acid Hybrid Hydrogels with Halloysite Nanotubes"
   Chemistry Letters, **46**, 1226-1228 (2017)

5. Kosuke Yamazoe, Yuji Higaki, Yoshihiro Inutsuka, Jun Miyawaki, Yitao Cui, Atsushi Takahara, and Yoshihisa Harada

"Enhancement of the Hydrogen-Bonding Network of Water Confined in a Polyelectrolyte Brush"
Langmuir, **33**, 3954-3959 (2017)

6. Yuji Higaki, Benjamin Fröhlich, Akihisa Yamamoto, Ryo Murakami, Makoto Kaneko, Atsushi Takahara, and Motomu Tanaka
"Ion Specific Modulation of Interfacial Interaction Potentials between Solid Substrates and Cell-Sized Particles Mediated via Zwitterionic, Super-Hydrophilic Polymer Brushes"
Journal of Physical Chemistry B, **121**, 1396-1404 (2017)

7. Yuji Higaki, Ken Suzuki, Noboru Ohta, Atsushi Takahara,
"Strain-Induced Molecular Aggregation States around a Crack Tip in a Segmented Polyurethane Film under Uniaxial Stretching"
Polymer, **116**, 458-465 (2017)

8. Chien-Wei Chu, Yuji Higaki, Chao-Hung Cheng, Chun-Wei Chang, Jiun-Tai Chen, and Atsushi Takahara
"Zwitterionic Polymer Brush Grafting on Anodic Aluminum Oxide Membranes by Surface-Initiated Atom Transfer Radical Polymerization"
Polymer Chemistry, **8**, 2309-2316 (2017)

9. Shuhei Nozaki, Tomoyasu Hirai, Yuji Higaki, Kohji Yoshinaga, Ken Kojio, Atsushi Takahara
"Effect of Chain Architecture of Polyol with Secondary Hydroxyl Group on Aggregation Structure and Mechanical Properties of Polyurethane Elastomer"
Polymer, **116**, 423–428 (2017)

10. Patcharida Chouwatat, Tomoyasu Hirai, Yuji Higaki, Hung-Jue Sue, Atsushi Takahara
"Aqueous Lubrication of Poly(etheretherketone) via Surface-initiated Polymerization of Electrolyte Monomers"
Polymer, **116**, 549-555 (2017)

11. Shiki Nojima, Yuji Higaki, Ryohei Ishige, Hirofumi Kabayama, Noboru Ohta, Hiroyasu Masunaga, Tomoyasu Hirai, Ken Kojio, Atsushi Takahara
"Effect of Molecular Mobility of Pre-Ordered Phase on Crystallization in Microphase-separated Lamellar Morphology of Strongly Segregated Crystalline-Crystalline Diblock Copolymers"
Polymer, **116**, 403-411 (2017)

12. Yuji Higaki, Atsushi Takahara
"Versatile Anti-fouling Surface Design through Nature-Inspired Approaches"
Green Materials, **5**, 1-25 (2016)

13. Tomoyasu Hirai, Yusuke Nagae, Kevin L White, K Kamitani, M Kido, T Uchiyama, Maiko Nishibori, Y Konishi, K Yokomachi, R Sugimoto, K Saigo, Tomoyuki Ohishi, Yuji Higaki, Ken Kojio, and Atsushi Takahara
"Solvent free oxidative coupling polymerization of 3-hexylthiophene (3HT) in the presence of FeCl3 particles"
RSC Advances, **6**, 111993-111996 (2016)

14. Taiki Hoshino, Shiki Nojima, Masanao Sato, Tomoyasu Hirai, Yuji Higaki, So Fujinami, Daiki Murakami, Shigesaburo Ogawa, Hiroshi Jinnai, Atsushi Takahara, Masaki Takata
"Observation of Constraint Surface Dynamics of Polystyrene Thin Films by Functionalization of a Silsesquioxane Cage"
Polymer, **105**, 487-499 (2016)

15. Motoyasu Kobayashi, Yuji Higaki, Taichi Kimura, Frederic Borschet, Atsushi Takahara, Bruno Ameduri
"Direct Surface Modification of Poly(VDF-co-TrFE) Films by Surface-initiated ATRP without Pretreatment"
RCS Advances, **6**, 86373-86384 (2016)

16. Shiki Nojima, Yuji Higaki, Ryohei Ishige, Hirofumi Kabayama, Noboru Ohta, Hiroyasu Masunaga, Tomoyasu Hirai, Ken Kojio, Atsushi Takahara
"Crystallization-Induced Structure Fluctuation of Crystallized Microdomain Structure Composed of Strongly Segregated Crystalline-Crystalline Diblock Copolymers"
Polymer, **102**, 256-265 (2016)

17. Keiichi Imato, Takeshi Kanehara, Shiki Nojima, Tomoyuki Ohishi, Yuji Higaki, Atsushi Takahara, Hideyuki Otsuka
"Repeatable Mechanochemical Activation of Dynamic Covalent Bonds in Thermoplastic Elastomers"
Chemical Communications, **52**, 10482-10485 (2016)

18. Kyung-Lynne Park, Wei Ma, Yuji Higaki, Atsushi Takahara
"Design and Characterization of Hybrid Hydrogels Composed of Imogolite Nanotublar Fiber and Hyaluronic Acid"
Polymer, **100**, 238-243 (2016)

19. Daiki Murakami, Yuki, Norizoe, Yuji Higaki, Atsushi Takahara, and Hiroshi Jinnai
"Direct Characterization of In-Plane Phase Separation in Polystyrene Brush/Cyclohexane System"
Macromolecules, **49**, 4862–4866 (2016)

20. Daiki Murakami, Motoyasu Kobayashi, Yuji Higaki, Atsushi Takahara
"Swollen Structure and Electrostatic Interaction of Polyelectrolyte Brush in Aqueous Solution"

Polymer, **98**, 464-469 (2016)

21. Yuji Higaki, Motoyasu Kobayashi, Daiki Murakami, Atsushi Takahara
"Anti-fouling Behavior of Polymer Brush Immobilized Surfaces"
Polymer Journal, **48**, 325-331 (2016)
(Focused Review)

22. Ryohei Ishige, Gregory A. Williams, Yuji Higaki, Noboru Ohta, Masugu Sato, Atsushi Takahara, Zhibin Guan
"In situ Ultra-Small-Angle X-ray Scattering Study under Uniaxial Stretching of Colloidal Crystal Prepared by Silica Nanoparticles Bearing Hydrogen-Bonding Polymer Grafts"
IUCrJ, **4**, 211-218 (2016).

23. Yoshio Furusho, Takeshi Endo, Keiko Higaki, Katsuhiro Kaetsu, Yuji Higaki, Ken Kojio, Atsushi Takahara
"Supramolecular Network Polymers Formed from Polyamidine and Carboxy-Terminated Telechelic Poly(n-butyl acrylate) via Amidinium-Carboxylate Salt Bridges"
Journal of Polymer Science Part A: Polymer Chemistry, **54**, 2148-2155 (2016)

24. Patcharida Chouwatat, Shiki Nojima, Yuji Higaki, Ken Kojio, Tomoyasu Hirai, Masaya Kotaki, Atsushi Takahara
"An Effect of Surface Segregation of Polyhedral Oligomeric Silsesquioxanes on Surface Physical Properties of Acrylic Hard Coating Materials"
Polymer, **84**, 81-88 (2016)

25. Rina Yoneyama, Tomoya Sato, Keiichi Imato, Takahiro Kosuge, Tomoyuki Ohishi, Yuji Higaki, Atsushi Takahara, Hideyuki Otsuka
"Autonomously Substitutable Organosilane Thin Films Based on Dynamic Covalent Diarylbibenzofuranone Units"
Chemistry Letters, **45**, 36-38 (2016)

26. Yuji Higaki, Ken Suzuki, Yoshihiko Oniki, Kevin L. White, Noboru Ohta, and Atsushi Takahara
"Molecular Aggregation Structure Evolution During Stretching of Environmentally Benign Lysine-based Segmented Poly(urethane-urea)s"
Polymer, **78**, 173-179 (2015)

27. Yuji Higaki, Jin Nishida, Ai Takenaka, Rika Yoshimatsu, Motoyasu Kobayashi, Atsushi Takahara
"Versatile Inhibition of Marine Organism Settlement Zwitterionic Polymer Brushes"
Polymer Journal, **47**, 811-818 (2015)
(Journal Feature Article, Cover Graphic Article)

28. Di Tao, Yuji Higaki, Wei Ma, Atsushi Takahara "Halloysite Nanotubes/Polyelectrolyte Hybrids as Adsorbents for Quick Removal of Dyes from Aqueous Solution"
Chemistry Letters, **44**, 1572-1574 (2015)

29. Tomoya Sato, Tomoyuki Ohishi, Yuji Higaki, Atsushi Takahara, Hideyuki Otsuka
"Radical Crossover Reactions of Alkoxyamine-Based Dynamic Covalent Polymer Brushes on Nanoparticles and the Effect on Their Dispersibility"
Polymer Journal, **48**, 147-155 (2016)

30. Shota Fujii, Makoto Kido, Masanao Sato, Noboru Ohta, Yuji Higaki, Tomoyasu Hirai, Ken Kojio, Atsushi Takahara
"pH-Responsive and Selective Protein Adsorption on an Amino Acid-Based Zwitterionic Polymer Surface"
Polymer Chemistry, **6**, 7053-7059 (2015)

31. Tomoyasu Hirai, Masanao Sato, Makoto Kido, Yusuke Nagae, Katsuhiro Kaetsu, Yudai Kiyoshima, Shota Fujii, Tomoyuki Ohishi, Kevin L White, Yuji Higaki, Yasutake Teraoka, Maiko Nishibori, Kazutaka Kamitani, Kenji Hanada, Takeharu Sugiyama, Ryuichi Sugimoto, Kazuhiko Saigo, Ken Kojio, and Atsushi Takahara
"X-ray absorption fine structure study on the role of solvent on polymerization of 3-hexylthiophene with solid FeCl3 particles"
Journal of Polymer Science Part A: Polymer Chemistry, **53**, 2075-2078 (2015)

32. Hui Jing, Yuji Higaki, Tatsuya Ishikawa, Kevin L. White, Hideyuki Otsuka, Atsushi Takahara
"Polyurethane Nanocomposites Reinforced with Surface Modified Halloysite Nanotubes"
Science of Advanced Materials, **7**(5), 974-987 (2015)

33. Takamichi Shinohara, Yuji Higaki, Hiroyasu Masunaga, Hiroki Ogawa, Yasushi Okamoto, Takashi Aoki, Atsushi Takahara
"Molecular Aggregation States and Wetting of a Poly{2-(perfluorooctyl)ethyl acrylate} Brush-Immobilized Nano-imprinted Surface"
Polymer, **69**, 10-16 (2015)

34. Yuji Higaki, Hiroki Kabayama, Di Tao, Atsushi Takahara
"Surface Functionalization of Electrospun Poly(butylene terephthalate) Fibers by Surface-initiated Radical Polymerization"
Macromolecular Chemistry and Physics, **216** (10), 1103-1108 (2015)

35. Di Tao, Yuji Higaki, Wei Ma, Hui Wu, Takamichi Shinohara, Takahiro Yano, Atsushi Takahara

"Chain Orientation in Poly(Glycolic Acid)/Halloysite Nanotube Hybrid Electrospun Fibers"
Polymer, **60**, 284-291 (2015)

36. Kevin L. White, Minhao Wong, Peng Li, Masahiro Miyamoto, Yuji Higaki, Atsushi Takahara, Hung-Jue Sue
"Interfacially mediated microstructural transition and self-healing in suspensions of sterically-stabilized nanoplatelets with smectic order"
Soft Matter, **11**, 954-971 (2015)

37. J. Nishida, Y. Higaki, A. Takahara
"Synthesis and characterization of barnacle adhesive mimetic towards underwater adhesion"
Chemistry Letters, **44**, 1047-1049 (2015)

38. Ya-Ting Hsieh, Ryohei Ishige, Yuji Higaki, Eamor M. Woo, Atsushi Takahara
"Microscopy and Microbeam X-ray Analyses in Poly(3-hydroxybutyrate-co- 3-hydroxyvalerate) with Amorphous Poly(vinyl acetate)"
Polymer, **55**(26), 6906-6914 (2014)

39. Yuji Higaki, Ryosuke Okazaki, Tatsuya Ishikawa, Moriya Kikuchi, Noboru Ohta, Atsushi Takahara
"Chain Stiffness and Chain Conformation of Poly(α-methylene-γ-butyrolactone) in Dilute Solutions"
Polymer, **55**(25), 6539-6545 (2014)

40. Koji Honda, Ikuo Yamamoto, Masamichi Morita, Hiroki Yamaguchi, Hiroshi Arita, Ryohei Ishige, Yuji Higaki, Atsushi Takahara
"Effect of α-substituents on Molecular Motion and Wetting Behaviors of Poly(fluoroalkyl acrylate) Thin Films with Short Fluoroalkyl Side Chains"
Polymer, **55**(24), 6303-6308 (2014)

41. Yuji Higaki, Kaoru Hatae, Tatsuya Ishikawa, Toshimasa Takanohashi, Jun-ichiro Hayashi, Atsushi Takahara
"Adsorption and Desorption Behavior of Asphaltene on Polymer Brush Immobilized Surfaces"
ACS Applied Material & Interfaces, **6**, 20385-20389 (2014)

42. Yan Cao, Hui Wu, Yuji Higaki, Hiroshi Jinnai, Atsushi Takahara
"Molecular Self-assembly of Nylon-12 Nanorod Cylindrically Confined to Nanoporous Alumina"
IUCrJ, **1**, 439-445 (2014)

43. Tomoya Sato, Yoshifumi Amamoto, Tomoyuki Ohishi, Yuji Higaki, Atsushi Takahara, Hideyuki Otsuka
"Radical crossover reactions of a dynamic covalent polymer brush for reversible hydrophilicity control"

Polymer, **55**(18), 4586-4592 (2014)

44. Hirohmi Watanabe, Aya Fujimoto, Rika Yamamoto, Jin Nishida, Yuji Higaki, Atsushi Takahara
"Polymer Brush Growth from Surface-textured Urushiol Thin Films"
Chemistry Letters, **43**(11), 1776-1778 (2014)

45. Shiki Nojima, Takamichi Shinohara, Yuji Higaki, Ryohei Ishige, Tomoyuki Ohishi, Daigo Kobayashi, Hiroyuki Setoyama, Atsushi Takahara
"Precise Characterization of Outermost Surface of Crystalline-Crystalline Diblock Copolymer Thin Films Using Synchrotron Radiation Soft X-ray Photoelectron Spectroscopy"
Polymer Journal, **46**, 637-640 (2014)

46. Takamichi Shinohara, Yuji Higaki, Taiki Hoshino, Hiroyasu Masunaga, Hiroki Ogawa, Yasushi Okamoto, Takashi Aoki, Atsushi Takahara
""Buried" nano-structure and molecular aggregation state in ordered heterojunction poly(3-hexylthiophene)-based photovoltaics"
*Japanese Journal of Applied Phys*ics, **53**(5S1), 05FH09.1-05FH09.6 (2014)

47. Jing Su, Yoshifumi Amamoto, Tomoya Sato, Masashi Kume, Taro Inada, Tomoyuki Ohishi, Yuji Higaki, Atsushi Takahara, Hideyuki Otsuka
"Reversible cross-linking reactions of alkoxyamine-appended polymers under bulk conditions for transition between flow and rubber-like states"
Polymer, **55**(6), 1474-1480 (2014)

48. Taihei Yamada, Kenta Kokado, Yuji Higaki, Atsushi Takahara, Kazuki Sada
"Preparation and Morphology Variation of Lipophilic Polyelectrolyte Brush Functioning in Nonpolar Solvents"
Chemistry Letters, **43**(8). 1300-1302 (2014)

49. Hui Jing, Yuji Higaki, Wei Ma, Jiang Xi, Hiroshi Jinnai, Hideyuki Otsuka, Atsushi Takahara
"Preparation and characterization of polycarbonate nanocomposites based on surface-modified halloysite nanotubes"
Polymer Journal, **46**(5), 307-312 (2014)

50. Yoshihiko Oniki, Ken Suzuki, Yuji Higaki, Ryohei Ishige, Noboru Ohta, Atsushi Takahara
"Molecular design of environmentally benign sugmented polyurethane(urea)s: effect of the hard segment component on the molecular aggregation states and biodegradation behavior"
Polymer Chemistry, **4**(13) 3735-3743 (2013)

51. Hui Wu, Yan Cao, Taiki Hoshino, Ryohei Ishige, Yuji Higaki, Noboru Ohta, Atsushi Takahara

"Confinement-Induced Crystal Growth in One-Dimensional Isotactic Polystyrene Nanorod Arrays"
ACS Macro Letters, **2**(5), 414-418 (2013)

52. Hang Xu, Jin Nishida, Hui Wu, Yuji Higaki, Hideyuki Otsuka, Noboru Ohta, Atsushi Takahara
"Structural effects of catechol-containing polystyrene gels based on a dual cross-linking approach"
Soft Matter, **9**(6), 1967-1974 (2013)

53. Wei Ma, Yuji Higaki, Hideyuki Otsuka, Atsushi Takahara
"Perfluoropolyether-infused nano-texture: a versatile approach to omniphobic coatings with low hysteresis and high transparency"
Chemical Communications, **49**, 597-599 (2013)

54. Tomoyuki Ohishi, Yoko Iki, Keiichi Imato, Yuji Higaki, Atsushi Takahara, Hideyuki Otsuka
"Insertion Metathesis Depolymerization of Aromatic Disulfide-containing Dynamic Covalent Polymers under Weak Intensity Photoirradiation"
Chemistry Letters, **42**(11), 1346-1348 (2013)

55. Hui Jing, Yuji Higaki, Wei Ma, Hui Wu, Weng O. Yah, Hideyuki Otsuka, Yuri M. Lvov, Atsushi Takahara
"Internally Modified Halloysite Nanotubes as Inorganic Nanocontainers for a Flame Retardant"
Chemistry Letters, **42**(2), 121-123 (2013)

56. Takahiro Yano, Yuji Higaki, Di Tao, Daiki Murakami, Motoyasu Kobayashi, Noboru Ohta, Jun-ichiro Koike, Misao Horigome, Hiroyasu Masunaga, Hiroki Ogawa, Yuka Ikemoto, Taro Moriwaki, Atsushi Takahara
"Orientation of poly(vinyl alcohol) nanofiber and crystallites in non-woven electrospun nanofiber mats under uniaxial stretching"
Polymer, **53**(21), 4702-4708 (2012)

57. Yuji Higaki, Ryosuke Okazaki, Atsushi Takahara
"Semirigid Biobased Polymer Brush: Poly (α-methylene-γ-butyrolactone) Brushes"
ACS Macro Letters, **1**(9), 1124-1127 (2012)

58. Wei Ma, Hui Wu, Yuji Higaki, Hideyuki Otsuka, Atsushi Takahara
"A "non-sticky" superhydrophobic surface prepared by self-assembly of fluoroalkyl phosphonic acid on a hierarchically micro/nanostructured alumina gel film"
Chemical Communications, **48**, 6824-6826 (2012)

59. Yoshifumi Amamoto, Yuji Higaki, Yasuhiro Matsuda, Hideyuki Otsuka, Atsushi Takahara
"Programmed Thermodynamic Formation and Structure Analysis of Star-like Nanogels with Core

Cross-linked by Thermally Exchangeable Dynamic Covalent Bonds"
Journal of the American Chemical Society, **129**(43), 13298-13304 (2007)

60. Hideyuki Otsuka, Koichiro Aotani, Yuji Higaki, Yoshifumi Amamoto, Atsushi Takahara
"Thermal Reorganization and Molecular Weight Control of Dynamic Covalent Polymers Containing Alkoxyamines in Their Main Chains"
Macromolecules, **40**(5), 1429-1434 (2007)

61. Yoshifumi Amamoto, Yuji Higaki, Yasuhiro Matsuda, Hideyuki Otsuka, Atsushi Takahara
"Programmed Formation of Nanogels via a Radical Crossover Reaction of Complementarily Reactive Diblock Copolymers"
Chemistry Letters, **36**(6), 774-775 (2007)

62. Yuji Higaki, Hideyuki Otsuka, Atsushi Takahara
"Facile synthesis of multiblock copolymers composed of poly(tetramethylene oxide) and polystyrene using living free-radical polymerization macroinitiator"
Polymer, **47**(11), 3784-3791 (2006)

63. Yuji Higaki, Hideyuki Otsuka, Atsushi Takahara
"A Thermodynamic Polymer Cross-Linking System Based on Radically Exchangeable Covalent Bonds"
Macromolecules, **39**(6), 2121-2125 (2006)
(Cited over 100 papers)

64. Go Yamaguchi, Yuji Higaki, Hideyuki Otsuka, Atsushi Takahara
"Reversible Radical Ring-Crossover Polymerization of an Alkoxyamine-Containing Dynamic Covalent Macrocycle"
Macromolecules, **38**(15), 6316-6320 (2005)

65. Yuji Higaki, Hideyuki Otsuka, Atsushi Takahara
"Dynamic Formation of Graft Polymers via Radical Crossover Reaction of Alkoxyamines"
Macromolecules, **37**(5), 1696-1701 (2004)

66. Yuji Higaki, Hideyuki Otsuka, Atsushi Takahara
"Synthesis of Well-defined poly(styrene)-b-poly(p-tertbutoxystyrene) Multiblock Copolymer from Poly(alkoxyamine) Macroinitiator"
Polymer, **44**(23), 7095-7101 (2003)

67. Hideyuki Otsuka, Koichiro Aotani, Yuji Higaki, Atsushi Takahara
"Polymer scrambling: macromolecular radical crossover reaction between the main chains of alkoxyamine-based dynamic covalent polymers"

Journal of the American Chemical Society, **125**, 4064-4065 (2003)
(Cited over 100 papers)

68. Yuji Higaki, Hideyuki Otsuka, Takeshi Endo, Atsushi Takahara
"Polyurethane Macroinitiator for Controlled Monomer Insertion of Styrene"
Macromolecules, **36**(5), 1494-1499 (2003)

69. Hideyuki Otsuka, Koichiro Aotani, Yuji Higaki, Atsushi Takahara
"A dynamic (reversible) covalent polymer: radical crossover behaviour of TEMPO-containing poly(alkoxyamine ester)s"
Chemical Communications, 2838-2839 (2002)

Books:

1. Atsushi Takahara, Yuji Higaki, "Design and Physicochemical Characterization of Novel Organic–Inorganic Hybrids from Natural Aluminosilicate Nanotubes" in "RSC Smart Materials No. 22, Functional Polymer Composites with Nanoclays, Chapter 4, pp. 131-156", Yuri Lvov, Baochun Guo, Rawil F. Fakhrullin (Ed.), Royal Society of Chemistry, Cambridge (2016)

2. Wei Ma, Yuji Higaki, Atsushi Takahara, "Imogolite Polymer Nanocomposites" in "Nanosized Tubular Clay Minerals; Halloysite and Imogolite, Chapter 24, pp 627-671", Peng Yuan, Antoine Thill, and Faïza Bergaya (Ed.), Elsevier Ltd., Amsterdam, Netherlands (2016)

3. Yuji Higaki, Motoyasu Kobayashi, Atsushi Takahara, "Macrotribology of Semi-rigid Poly(α-methylene-γ-butyrolactone) and Poly(methyl methacrylate) Brushes" in "Surfactant in Tribology, Vol. 4, pp 51-61", Girma Biresaw and Kashmiri Lal Mittal (Ed.), CRC Press, Taylor & Francis Group, New York (2014)

4. Yuji Higaki, Ryohei Ishige, Atsushi Takahara, "FLUOROPOLYMER SURFACES/INTERFACES" in "Handbook of Fluoropolymer Science and Technology, Chapter 19, pp 433-450", Dennis W. Smith, Jr., Scott T. Iacono, and Suresh Iyer (Ed.), John Wiley & Sons Inc., New Jersey (2014)

Proceedings:

1. Y. Higaki, H. Otsuka, A. Takahara
"Dynamic Transformation of Polymer Structure by Radical Crossover Reaction"
Trans. Mater. Res. Soc. Jpn., 30(3), 719-722 (2005)

2. H. Otsuka, K. Aotani, Y. Higaki, A. Takahara
"Reorganization and Scrambling Behavior of Alkoxyamine-Based Dynamic Covalent Polymers by Macromolecular Radical Crossover Reaction"

Trans. Mater. Res. Soc. Jpn., **29**, 145-148 (2004)

3. Y. Higaki, H. Otsuka, A. Takahara
   "Synthesis of Block and Random Copolymers of 3-Vinylpyridine by Nitroxide-Mediated Radical Polymerization"
   Trans. Mater. Res. Soc. Jpn., **29**, 145-148 (2004)

Invited Lecture (International Conference and Symposium):

1. Salt-Responsive Hydration State and Interaction of Zwitterionic Sulfobetaine-based Polymer Brushes; The 97th CSJ Annual Meeting, Asian International Symposium -Polymer-; Keio University, Yokohama, Japan; 2017.3.18

2. Molecular Design and Precise Characterization of Fluoropolymers for Stable Liquid Repellency; Fluoropolymer 2016; Harrah's Hotel and Conference Center, New Orleans, LA USA; 2016.10.02

3. Anti-fouling Properties of Polymer Brush Nanocoatings to Marine Fouling Organisms; 10th International Materials Technology Conference & Exhibition (IMTCE2016); Putra World Trade Centre, Kuala Lumpur, Malaysia; 2016.05.17.

4. Precise Morphology Analysis of Diblock Copolymers with Fluoroalkyl Side-chains; 21st International Symposium on Fluorine Chemistry; Via Valleggio, Como, Italy; 2015.08.25

5. Anti-fouling Property of High-density Polymer Brushes for Marine Organisms; International Symposium on Materials for Enabling Nanodevices (ISMEN2014); National Cheng Kung University, Tainan, Taiwan; 2014.09.05.