Takashi Ito

Curriculum Vitae (February 29, 2024)

Department of Chemistry
Kansas State University
1212 Mid-Campus Drive North, 213 CBC Building
Manhattan, Kansas 66506-0401, USA

Phone: (785) 532-1451
E-mail: ito@ksu.edu

Education

1995-1998	Ph.D. Chemistry, Department of Chemistry, School of Science, The University of Tokyo JSPS Research Fellow (DC1) Mentor: Prof. Yoshio Umezawa Thesis title: "Scanning probe microscopy using chemically modified tips"
1993-1995	M. S. Chemistry, Department of Chemistry, School of Science, The University of Tokyo Mentor: Prof. Yoshio Umezawa Thesis title: "Membrane potential changes induced by interactions between uncharged phenols and lipophilic ammonium salts at the liquid membrane–water interface"
1989-1993	B. S. Chemistry, Department of Chemistry, School of Science, The University of Tokyo Mentor: Prof. Yoshio Umezawa

Research and professional experience

2014-	Professor, Department of Chemistry, Kansas State University
2024	Adjunct Professor, Department of Chemistry, Tokyo University of Science
2021-2022	Visiting Scientist, Chemical Sciences and Engineering Division, Argonne National Laboratory (on sabbatical)
2010-2014	Associate Professor, Department of Chemistry, Kansas State University
2004-2010	Assistant Professor, Department of Chemistry, Kansas State University
2001-2004	Postdoctoral Research Associate, Department of Chemistry, Texas A&M University Mentor: Prof. Richard M. Crooks Research topic: "Development of nanopore-based detection/separation techniques"
1998-2001	Research Associate, Department of Chemistry, Tokyo University of Science Mentor: Prof. Yuko Hasegawa Research topic: "Solvent extraction and electrochemical sensors for lanthanide ions"

Research Interests

Analytical Chemistry (chemical recognition, electrochemical sensors, micro-/nanofluidics, scanning probe microscopy), Materials Chemistry (nanoporous materials, block copolymers, ultrathin films, laser-based lithography), Physical Chemistry (mass/charge transport measurements within nanospaces, single-molecule spectroscopy, electrochemistry, catalysis), Bioanalytical Chemistry (Separations and sensing of oligonucleotides and proteins).

- Fabrication of novel self-organized nanostructural materials for chemical separations, sensing and catalysis.
- Investigation of mass/charge transport and chemical recognition within self-organized nanostructural media.
- Development of novel nanostructured media for chemical separations, sensing, and catalytic reactions.
- Analytical applications of group-III semiconductors.
- Analytical methodologies based on scanning probe microscopy.

Honors and Awards

- Sabbatical leave at Argonne National Laboratory (ANL) (August 2021 – May 2022) based on the Faculty

Sabbatical Program of ANL.
- 2020 Professional Performance Award - KSU (2020)
- Ervin W. Segebrecht Award - KSU (2019)
- The Japan Society for Analytical Chemistry Award for Young Researchers (September 2003)
- Koensho Award (best presentation) in *60th Spring Meeting of the Japan Society for Analytical Chemistry* (Hirosaki, Japan, May 1999)
- Research fellow of the Japan Society for the Promotion of Science (JSPS) (1995–1998)

Professional Activities and Affiliations:

Member The Japan Society for Analytical Chemistry (1996-), Chemical Society of Japan (1998-), American Chemical Society (2002-), The Electrochemical Society (2004-), Alpha Chi Sigma (2005-), Phi Lambda Upsilon (2009-), International Society of Electrochemistry (2012-), Society of Electroanalytical Chemistry (2014-), Sigma Xi (2020-2023).

Editorial Service and Service to Professional Societies:

- Local Section Alternate Councilor for the K-State Local Section of the American Chemical Society (2020-22).
- Board of Director, Society of Electroanalytical Chemistry (SEAC) (2016-21)
- SEAC Newsletter Editor (2015-present).
- Editorial Board member: *Chem. Rec.* (2015-present).
- Lead Editor (with Co-Editor, Dr. Armet Kusoglu) of *ECS Transactions* for the 228th ECS Meeting – Nanoscale Electrochemistry (2015, Vol. 69).
- Chair for the K-State Local Section of the American Chemical Society (2012-14). I served as the Analytical Chemistry session chair at the 39th ACS-MWRM (Manhattan, KS, October 2004).
- Member-at-Large, the Physical and Analytical Electrochemistry Division, the Electrochemical Society (2011-2013). I served as a student poster session judge at the 221th ECS Meeting (Seattle, WA, May 2012) and at the 223th ECS Meeting (Toronto, ON, Canada, May 2013). I also served as a session chair (I4 Grahame Award Symposium and Physical and Analytical Electrochemistry General Session) at the 213th ECS Meeting (Toronto, ON, Canada, May 2013).
- Co-Editor (with Prof. L. Baker and Dr. P. Trulove) of *ECS Transactions* for the 218th ECS Meeting – Electrochemistry in Nanopores (2010, Vol. 33, Issue 19).

Symposia organized:

11. "Nanoscale Electrochemistry" at Pittcon 2021 (New Orleans, LA, March 2021; with Prof. Lane Baker, Indiana Univ.).
10. "Supramolecular Chemistry for Sensing, Sequestration and Separation (symposium)" at Pittcon 2020 (Chicago, IL, March 2020; with Prof. Amar Flood, Indiana Univ.).
9. "State-of-the-Art Optical Microscopy for Polymer Nanostructure Characterization (symposium)" at Pittcon 2018 (Orlando, FL, February 2018).
8. "Electrochemistry at Nanoscale Structures (organized contributed oral session)" at Pittcon 2017 (Chicago, IL, March 2017; with Profs. Lane Baker, Indiana Univ., and Mei Shen, UIUC).
7. "Novel Electrode Materials and Architectures for Energy, Sensing, and Biomedical applications" at the 51th ACS-MWRM (Manhattan, KS; October 2016; with Profs. Jun Li, KSU, and Judy Wu, KU).
6. "Nanoscale Electrochemistry" at the 228th ECS Meeting (Phoenix, AZ, October 2015; with Dr. Ahmet Kusoglu, LBNL).
5. "Electrochemistry at Nanoscale Structures (organized contributed oral session)" at Pittcon 2015 (New Orleans, LA, March 2015; with Prof. Lane Baker, Indiana Univ.).
4. "Electrochemistry in Nanospace" at the 226th ECS Meeting (2014 ECS and SMEQ Joint International Meeting) (Cancun, Mexico, October 2014; with Prof. Lane Baker, Indiana Univ.).

3. "Controlled Nanopores for Chemical Separations and Sensing (symposium)" at Pittcon 2014 (Chicago, IL, March 2014; with Prof. Lane Baker, Indiana Univ.).
2. "Electrochemistry at Nanoscale Structures (organized contributed oral session)" at Pittcon 2013 (Philadelphia, PA, March 2013; with Prof. Lane Baker, Indiana Univ.).
1. "I2 Electrochemistry in Nanospace" at the 218th ECS Meeting (Las Vegas, ND, October 2010; with Prof. Lane Baker, Indiana Univ.).

Peer Reviewer (≈ 390 papers) *Nat. Mater., Nat. Commun.*, *Sci. Rep*., *ACS Appl. Mater. Interfaces*, *ACS App. Nano Mater*., *ACS Appl. Polym. Mater*., *Anal. Chem.*, *Biomacromolecules*, *Chem. Mater.*, *J. Am. Chem. Soc.*, *J. Chem. Educ., J. Phys. Chem.*, *J. Phys. Chem. Lett.*, *Langmuir*, *Macromolecules*, *Nano Lett., Analyst, Anal. Methods, Chem. Commun., Chem. Sci., Chem. Soc. Rev., J. Mater. Chem., Lab Chip, Phys. Chem. Chem. Phys., RSC Adv., Adv. Energy Mater., Adv. Mater., Angew. Chem.*, *Chem.–Asian J., Chem.–Eur. J., ChemElectroChem, ChemPhysChem, ChemSusChem, Electroanalysis, Eur. J. Inorg. Chem., Med. Devices Sens., Small, Appl. Phys. Lett., J. Appl. Phys., J. Electrochem. Soc., Anal. Chim. Acta, Colloids Surf. B, Electrochem. Commun., Electrochim. Acta, J. Colloid Interface Sci., J. Electroanal. Chem., Micron, Nanomed. Nanotech. Biol. Med., Physica A, Polymer, Prog. Org. Coat., Sens. Actuators B, Trends Anal. Chem., Anal. Sci., Jpn. J. Appl. Phys., IEEE Sensors Journal, IEEE Transactions on Nanotechnology, J. Phys. Chem. Solids, Anal. Lett., Ionics, Solid State Electronics, Sensor Lett., Nano. Res. Lett. PLOS ONE.*

Grant Reviewer (≈ 100 proposals) *NSF (CHE, CBET)*, *DOE-BES*, *DOD-ARO, ACS-PRF (Type G, DNI, ND),* *ORAU Ralph E. Powe Junior Faculty Enhancement Award, U.S. Civilian Research and Development Foundation, NASA Postdoctoral Program, Technology Foundation STW (Dutch)*.

- Served in four review panels for NSF.

Textbook Review

- "Exploring Chemical Analysis, 3rd Ed." Daniel C. Harris, W. H. Freeman and Company, New York.
- "Exploring Chemical Analysis, 4rd Ed." Daniel C. Harris, W. H. Freeman and Company, New York.
- "Practical Materials Characterization" Mauro Sardela Ed. Springer, New York.
- "Instrumental Analysis, 1st Ed." Granger/Granger/Sienerth/Yochum, Oxford University Press, New York.

Publications

Peer-Reviewed Research Publications: *#30~ are publications based on works at KSU.*

101. N. Bhattacharjee, A. Nathani, J. B. Unzaga, T. Ito,* A. H. Flood* "Redox-Gated Recognition of Phosphate Using a Ferrocene-Tethered Non-Symmetric Aryl-Triazole Pentad", *Supramol. Chem*., in press.
100. N. Bhattacharjee, X. Gao, A. Nathani, J. R. Dobscha, M. Pink, T. Ito, A. H. Flood* "Solvent Acts as the Referee in a Match-up between Charged and Preorganized Receptors", *Chem. Eur. J.* **2023**, *29*, e202302339 (DOI: 10.1002/chem.202302339).
99. T. Ito,* S. G. Jenkins, S. Seifert, A. Uysal "Electrochemistry-Induced Direct Deposition of Nanoscale Thin Zeolitic Imidazolate Framework-8 Films on Insulator Substrates", *Cryst. Growth Des*. **2023**, 23, 6369-6377 (DOI: 10.1021/acs.cgd.3c00329).
98. T. Ito* "Single-Molecule Fluorescence Investigations of Solute Transport Dynamics in Nanostructured Membrane Separation Materials" (Invited Perspective), *J. Phys. Chem. B* **2023**, 127, 5733-5741 (DOI: 10.1021/acs.jpcb.3c02807).
97. T. Ito,* S. Seifert, K. N. Moeller, A. Uysal "In Situ Synchrotron X-Ray Scattering Investigation of Cathodic ZIF-8 Deposition on Graphite Using 3D-Printed Cells", *Anal. Chem*. **2023**, 95, 8206-8213 (DOI:

10.1021/acs.analchem.2c05668).

96. A. Anji,* B. Anderson, F. Akhtar, D. Meekins, T. Ito, S. Mummidi, M. Kumari* "Exosome Internalization Induces Neurogenesis of Pluripotent Progenitor Cells", *Stem Cell Rev. Rep*., **2023**, *19*, 1152–1176 (DOI: 10.1007/s12015-023-10512-6).
95. O. Shafiee, S. G. Jenkins, T. Ito,* D. A. Higgins* "Diffusion of Hydrophilic to Hydrophobic Forms of Nile Red in Aqueous C12EO10 Gels by Variable Area Fluorescence Correlation Spectroscopy", *Phys. Chem. Chem. Phys.* **2023**, *25*, 2853–2861 (DOI: 10.1039/D2CP05578C).
94. H. Rashidi, K. J. Howard, T. Ito,* D. A. Higgins,* "Random Walks and Sticky Surfaces: Single Molecule Measurements of Solute Diffusion in Ethanol/Water-Filled Anodic Alumina Nanopores", *J. Phys. Chem. C* **2023***, 127*, 411-420 (DOI: 10.1021/acs.jpcc.2c07083).
93. H. Coceancigh, L. Xue, S. Nagasaka, D. A. Higgins,* T. Ito* "Solvent-Induced Swelling Behaviors of Microphase-Separated Polystyrene-block-Poly(ethylene oxide) Thin Films Investigated Using In Situ Spectroscopic Ellipsometry and Single-Molecule Fluorescence Microscopy", *J. Phys. Chem. B*, **2022**, *126*, 8338–8349 (DOI: 10.1021/acs.jpcb.2c05025).
92. L. Xue,* S. Jin, S. Nagasaka, D. A. Higgins,* T. Ito* "Investigation of Molecular Diffusion at Block Copolymer Thin Films Using Maximum Entropy Method-Based Fluorescence Correlation Spectroscopy and Single Molecule Tracking", *J. Fluoresc.* **2022***, 32*, 1779–1787 (DOI: 10.1007/s10895-022-02975-6).
91. T. Ito,* A. Nathani "Electrochemical Sensing at Nanoporous Film-Coated Electrodes" (Review), *Electrochem. Sci. Adv*. **2022**, *2*, e2100126 (DOI: 10.1002/elsa.202100126).
90. T. Ito,* D. A. Higgins: "Fluorescence Microscopic Investigations of Molecular Dynamics in Self-Assembled Nanostructures", *Chem. Rec*. **2021**, in press (DOI: 10.1002/tcr.202000173).
89. T. Ito,* H. Coceancigh, Y. Yi,* J. N. Sharma, F. C. Parks, A. H. Flood "Nanoporous Thin Films Formed from Photocleavable Diblock Copolymers on Gold Substrates Modified with Thiolate Self-Assembled Monolayers", *Langmuir* **2020**, *36*, 9259-9268 (DOI: 10.1021/acs.langmuir.0c01572).
88. G. Ghimire, M. M. Moore, R. Leuschen, S. Nagasaka, N. Kameta, M. Masuda, D. A. Higgins,* T. Ito* "Influences of Hydrogen Bonding-Based Stabilization of Bolaamphiphile Layers on Molecular Diffusion within Organic Nanotubes Having Inner Carboxyl Groups", *Langmuir* **2020**, *36*, 6145-6153 (DOI: 10.1021/acs.langmuir.0c00556).
87. R. Kumarasinghe, T. Ito,* D. A. Higgins* "Nanoconfinement and Mass Transport in Silica Mesopores: the Role of Charge at the Single Molecule and Single Pore Levels", *Anal. Chem.* **2020**, *92*, 1416-1423 (DOI: 10.1021/acs.analchem.9b04589).
86. Z. Harandizadeh, T. Ito* "Block Copolymer-Derived Recessed Nanodisk-Array Electrodes as Platforms for Folding-Based Electrochemical DNA Sensors", *ChemElectroChem* **2019**, *6*, 5627-5632 (DOI: 10.1002/celc.201901562).
85. G. Ghimire, R. Espinoza, H. Xu, S. Nagasaka, N. Kameta, M. Masuda, D. A. Higgins,* T. Ito* "Diffusion Behavior of Differently Charged Molecules in Self-Assembled Organic Nanotubes Studied Using Imaging Fluorescence Correlation Spectroscopy", *Langmuir* **2019**, *35*, 7783-7790 (DOI: 10.1021/acs.langmuir.9b01022).
84. H. Coceancigh, D. A. Higgins,* T. Ito* "Optical Microscopic Techniques for Synthetic Polymer Characterization" (Review), *Anal. Chem.* **2019**, *91*, 405-424 (DOI: 10.1021/acs.analchem.8b04694).

    Included in "Virtual Issue on Super-Resolution Microscopy".
    https://pubs.acs.org/page/vi/super-resolution-optical-microscopy
83. Z. Harandizadeh, J. Xie, M. M. Moore, K. L. Hohn, T. Ito* "Sensitization with Stannous Acetate in Dimethyl Sulfoxide for Silver Electroless Deposition", *J. Electrochem. Soc.* **2018**, *165*, D488-D493 (DOI: 10.1149/2.1391810jes).
82. T. Ito,* G. Ghimire "Electrochemical Applications of Microphase-Separated Block Copolymer Thin Films" (Review), *ChemElectroChem* **2018**, *5*, 2937-2953 (DOI: 10.1002/celc.201800576).

81. H. Coceancigh, K.-H. Tran-Ba, N. Siepser, L. A. Baker, T. Ito* "Longitudinally Controlled Modification of Cylindrical and Conical Track-Etched Poly(ethylene terephthalate) Pores Using Electrochemically-Assisted Click Reaction" *Langmuir* **2017**, *33*, 11998-12006 (DOI: 10.1021/acs.langmuir.7b02778).
80. H. Xu, S. Nagasaka, N. Kameta, M. Masuda, T. Ito,* D. A. Higgins* "Spectroscopic Imaging Studies of Nanoscale Polarity and Mass Transport Phenomena in Self-Assembled Organic Nanotubes" *Phys. Chem. Chem. Phys.* **2017**, 19, 20040-20048 (DOI: 10.1039/C7CP03672H).
79. G. Ghimire, H. Coceancigh, Y. Yi, T. Ito* "Electrochemical Characterization and Catalytic Application of Gold-Supported Ferrocene-Containing Diblock Copolymer Thin Films in Ethanol Solution" *ACS Appl. Mater. Interfaces* **2017**, *9*, 2906-2913 (DOI: 10.1021/acsami.6b11181).
78. D. R. Sapkota, K.-H. Tran-Ba, T. Elwell-Cuddy, D. A. Higgins,* T. Ito* "Single-Molecule Tracking Study of the Permeability and Transverse Width of Individual Cylindrical Microdomains in Solvent-Swollen Polystyrene-*block*-Poly(ethylene oxide) Films" *J. Phys. Chem. B* **2016**, *120*, 12177-12183 (DOI: 10.1021/acs.jpcb.6b08368).
77. H. Xu, S. Nagasaka, N. Kameta, M. Masuda, T. Ito,* D. A. Higgins* "Imaging Fluorescence Correlation Spectroscopy Studies of Dye Diffusion in Self-Assembled Organic Nanotubes" *Phys. Chem. Chem. Phys.* **2016**, *18*, 16766-16774 (DOI: 10.1039/C6CP03069F).
76. M. Reichenberger,* T. Ito, P. B. Ugorowski, B. W. Montag, S. R. Stevenson, D. M. Nichols, D. S. McGregor "Electrodeposition of Uranium and Thorium onto Small Platinum Electrodes" *Nucl. Instrum. Meth. A* **2016**, *812*, 12-16 (DOI:10.1016/j.nima.2015.12.046).
75. R. Kumarasinghe, E. D. Higgins, T. Ito,* D. A. Higgins* "Spectroscopic and Polarization-Dependent Single-Molecule Tracking Reveal the One-Dimensional Diffusion Pathways in Surfactant-Templated Mesoporous Silica" *J. Phys. Chem. C* **2016**, *120*, 715-723 (DOI: 10.1021/acs.jpcc.5b10152).
74. M. Reichenberger,* T. C. Unruh, P. B. Ugorowski, T. Ito, J. A. Roberts, S. R. Stevenson, D. M. Nichols, D. S. McGregor "Micro-Pocket Fission Detectors (MPFDs) for In-Core Neutron Detection" *Ann. Nucl. Energy* **2016**, *87*, 318-323 (DOI:10.1016/j.anucene.2015.08.022).
73. S. C. Park, T. Ito,* D. A. Higgins* "Dimensionality of Diffusion in Flow-Aligned Surfactant-Templated Mesoporous Silica: A Single Molecule Tracking Study of Pore Wall Permeability" *J. Phys. Chem. C* **2015**, *119*, 26101-26110 (DOI: 10.1021/acs.jpcc.5b06835).
72. G. Ghimire, Y. Yi, M. A. Derylo, L. A. Baker, T. Ito* "Electron Propagation within Redox-Active Microdomains in Thin Films of Ferrocene-Containing Diblock Copolymers" *Langmuir* **2015**, *31*, 12307-12314 (DOI: 10.1021/acs.langmuir.5b02996).
71. K.-H. Tran-Ba, D. A. Higgins,* T. Ito* "Fluorescence Recovery After Photobleaching and Single-Molecule Tracking Measurements of Anisotropic Diffusion within Identical Regions of a Cylinder-Forming Diblock Copolymer Film" *Anal. Chem.* **2015**, *87*, 5802-5809 (DOI: 10.1021/acs.analchem.5b01041).
70. D. A. Higgins,* S. C. Park, K.-H. Tran-Ba, T. Ito* "Single-Molecule Investigations of Morphology and Mass Transport Dynamics in Nanostructured Materials" *Annu. Rev. Anal. Chem.* **2015**, *8*, 193-216 (DOI: 10.1146/annurev-anchem-071114-040153).
69. K. C. Robben, K.-H. Tran-Ba, T. Ito,* D. A. Higgins* "Trajectory-Profile-Guided Single Molecule Tracking for Assignment of One-Dimensional Diffusion Trajectories" *Anal. Chem.* **2014**, *86*, 10820-10827 (DOI: 10.1021/ac502881u).
68. K.-H. Tran-Ba, D. A. Higgins,* T. Ito* "Single-Molecule Tracking Studies of Flow-Induced Microdomain Alignment in Cylinder-Forming Polystyrene-Poly(ethylene oxide) Diblock Copolymer Films" *J. Phys. Chem. B* **2014**, 118, 11406-11415 (DOI: 10.1021/jp507594t).
67. B. Pandey, C. B. Cox, P. S. Thapa, T. Ito* "Potentiometric Response Characteristics of Oxide-Coated Gallium Electrodes in Aqueous Solutions" *Electrochim. Acta*, **2014**, 142, 378-385 (DOI:10.1016/j.electacta.2014.07.083).

66. T. Ito* "Block Copolymer-Derived Monolithic Polymer Films and Membranes Comprising Self-Organized Cylindrical Nanopores for Chemical Sensing and Separations" (Focus Review), *Chemistry-An Asian J.* **2014**, *9*, 2708-2718 (DOI: 10.1002/asia.201402136).
65. H. Xu, C. J. Minter, S. Nagasaka, T. Ito,* D. A. Higgins* "Elongation, Alignment and Guided Electrophoretic Migration of ds-DNA in Flow-Aligned Hexagonal F127 Gels" *J. Phys. Chem. B* **2014**, *118*, 4151-4159 (DOI: 10.1021/jp501175h).
64. F. Li, T. Ito* "Complexation-Induced Control of Electron Propagation Based on Bounded Diffusion through Nanopore-Tethered Ferrocenes" *J. Am. Chem. Soc.* **2013**, *135*, 16260-16263 (DOI: 10.1021/ja407002d).
63. D. A. Higgins,* K.-H. Tran-Ba, T. Ito* "Following Single Molecules to a Better Understanding of Self-Assembled One-Dimensional Nanostructures" (Perspective) *J. Phys. Chem. Lett.* **2013**, *4*, 3095-3103 (DOI: 10.1021/jz401215r).
62. R. Pramanik, T. Ito,* D. A. Higgins* "Molecular Length Dependence of Single Molecule Wobbling within Surfactant and Solvent Filled Silica Mesopores" *J. Phys. Chem. C* **2013**, *117*, 15438-15446 (DOI: 10.1021/jp404991m).
61. C. A. Morris, C.-C. Chen, T. Ito, L. A. Baker* "Local pH Measurement with Scanning Ion Conductance Microscopy" *J. Electrochem. Soc.* **2013**, *160*, H430-H435 (DOI:10.1149/2.028308jes).
60. S. C. Park, T. Ito,* D. A. Higgins* "Single Molecule Tracking Studies of Flow-Aligned Mesoporous Silica Monoliths: Aging-Time Dependence of Pore Order" *J. Phys. Chem. B* **2013**, *117*, 4222-4230 (DOI: 10.1021/jp303586h).
59. C. M. De Silva, B. Pandey, F. Li, T. Ito * "Adsorption of Primary Substituted Hydrocarbons onto Solid Gallium Substrates" *Langmuir,* **2013**, 29, 4568-4573 (DOI: 10.1021/la400334n).
58. R. Pramanik, T. Ito,* D. A. Higgins* "Single Molecule Wobbling in Cylindrical Mesopores" *J. Phys. Chem. C* **2013**, *117*, 3668-3673 (DOI: 10.1021/jp400479w).
57. F. Li, B. Pandey, T. Ito* "Linker-Based Control of Electron Propagation through Ferrocene Moieties Covalently Anchored onto Insulator-Based Nanopores Derived from a Polystyrene-Poly(methylmethacrylate) Diblock Copolymer" *Langmuir* **2012**, *28*, 16496-16500 (DOI: 10.1021/la303770k).
56. B. Pandey, P. S. Thapa, D. A. Higgins, T. Ito* "Formation of Self-Organized Nanoporous Anodic Oxide from Metallic Gallium" *Langmuir* **2012**, 28, 13705-13711 (DOI: 10.1021/la302672a).
55. K.-H. Tran-Ba, J. J. Finley, D. A. Higgins,* T. Ito* "Single Molecule Tracking Studies of Millimeter-Scale Cylindrical Domain Alignment in Polystyrene–Poly(ethylene oxide) Diblock Copolymer Films Induced by Solvent Vapor Penetration" *J. Phys. Chem. Lett.* **2012**, *3*, 1968-1973 (DOI: 10.1021/jz300647z).
54. A. W. Kirkeminde, T. Torres, T. Ito, D. A. Higgins* "Multiple Diffusion Pathways in Pluronic F127 Mesophases Revealed by Single Molecule Tracking and Fluorescence Correlation Spectroscopy" *J. Phys. Chem. B* **2011**, *115*, 12736-12743 (DOI: 10.1021/jp208234b).
53. F. Li, R. Diaz, T. Ito* "Quantitative Investigation of Surface Functionalization of Cylindrical Nanopores Derived from Polystyrene-Poly(methylmethacrylate) Diblock Copolymers" *RSC Adv.* **2011,** *1*, 1732-1736 (DOI: 10.1039/C1RA00471A).
52. B. Pandey, K. H. Tran Ba, Y. Li, R. Diaz, T. Ito* "Electrochemical Study of the Diffusion of Cytochrome c within Nanoscale Pores Derived from Cylinder-Forming Polystyrene-Poly(methylmethacrylate) Diblock Copolymers" *Electrochim. Acta* **2011**, *56*, 10185-10190 (DOI:10.1016/j.electacta.2011.09.005).
51. D. M. N. T Perera, B. Pandey, T. Ito* "Electrochemical Impedance Spectroscopy Studies of Organic-Solvent-Induced Permeability Changes in Nanoporous Films Derived from a Cylinder-Forming Diblock Copolymer" *Langmuir* **2011,** 27, 11111-11117 (DOI: 10.1021/la202005n).
50. K. H. Tran Ba, T. A. Everett, T. Ito,* D. A. Higgins* "Trajectory Angle Determination in One Dimensional Single Molecule Tracking Data by Orthogonal Regression Analysis" *Phys. Chem. Chem. Phys.* **2011,** *13*,

1827-1835 (DOI: 10.1039/C0CP01581D).

49. F. Li, E. Shishkin, M. A. Mastro, J. K. Hite, C. R. Eddy, Jr., J. H. Edgar, T. Ito* "Photopolymerization of Self-Assembled Monolayers of Diacetylenic Alkylphosphonic Acids on Group-III Nitride Substrates" *Langmuir* **2010**, 26, 10725-10730 (DOI: 10.1021/la100273q).
48. D. M. N. T. Perera, S. Nagasaka, T. Ito* "pH-Dependent Voltammetric Responses of Microdisk Gold Electrodes Modified with Thiotic Acid Self-Assembled Monolayers" *Supramol. Chem.* **2010**, *22*, 450-454 (DOI:10.1080/10610278.2010.483736).
47. T. Ito,* I. Grabowska, S. Ibrahim "Chemical Force Microscopy for Materials Characterization: Investigations of Host-Guest Interactions and Polymer Surface Chemistry" *Trends Anal. Chem.* **2010**, *29*, 225-233 (DOI:10.1016/j.trac.2009.12.008).
46. D. M. N. T. Perera, T. Ito* "Cyclic Voltammetry on Recessed Nanodisk-Array Electrodes Prepared from Track-Etched Polycarbonate Membranes with 10-nm Diameter Pores" *Analyst* **2010**, *135*, 172-176 (DOI: 10.1039/B917517B).
45. S. Ibrahim, T. Ito* "Surface Chemical Properties of Nanoscale Domains on UV-Treated Polystyrene–Poly(methylmethacrylate) Diblock Copolymer Films Studied Using Scanning Force Microscopy" *Langmuir* **2010**, *26*, 2119-2123 (DOI: 10.1021/la902677e).
44. P. Gamage, K. Lovell, M. T. Basel, M. R. Pokhrel, D. Battle, T. Ito, M. Pavlenok, M. Niederweis, S. H. Bossmann* "Poly-N-Isopropylacrylamide/Acrylic Acid Copolymers for the Generation of Nanostructures at Mica Surfaces and as Hydrophobic Host Systems for the Porin MspA from Mycobacterium smegmatis" *J. Phys. Chem. C* **2009**, 113, 16485-16494 (DOI: 10.1021/jp9057687).
43. K. H. Tran Ba, M. A. Mastro, J. K. Hite, C. R. Eddy, Jr., T. Ito* "Nitrogen-Polar Gallium Nitride Substrates as Solid-State pH-Selective Potentiometric Sensors" *Appl. Phys. Lett.* **2009**, 95, 142501 (DOI: 10.1063/1.3242356).
42. H. C. Maire, S. Ibrahim, Y. Li, T. Ito* "Effects of Substrate Roughness on the Orientation of Cylindrical Domains in Thin Films of a Polystyrene–Poly(methylmethacrylate) Diblock Copolymer Studied Using Atomic Force Microscopy and Cyclic Voltammetry" *Polymer* **2009**, *50*, 2273-2280 (DOI:10.1016/j.polymer.2009.03.002).
41. Y. Li, T. Ito* "Size-Exclusion Properties of Nanoporous Films Derived from Polystyrene-Poly(methylmethacrylate) Diblock Copolymers Assessed Using Direct Electrochemistry of Ferritins" *Anal. Chem*. **2009**, 81, 851-855 (DOI: 10.1021/ac802201w).
40. I. Szymańska, E. Dolusic, W. Dehaen, W. Maes, T. Ito,* H. Radecka* "Determination of Interaction Strength between Corrole and Phenol Derivatives in Aqueous Media Using Atomic Force Microscopy" *Supramol. Chem.* **2009**, 21, 555-563 (DOI:10.1080/10610270802406611).
39. Y. Li, T. Ito* "Surface Chemical Functionalization of Cylindrical Nanopores Derived from a Polystyrene-Poly(methylmethacrylate) Diblock Copolymer via Amidation" *Langmuir* **2008**, *24*, 8959-8963 (DOI: 10.1021/la800992f).
38. Y. Xiao, T. Ito,* D. A. Higgins* "Grayscale Patterning of Polymer Thin Films with Nanometer Precision by Direct-Write Multiphoton Photolithography" *Langmuir* **2008**, *24*, 8939-8943 (DOI: 10.1021/la8008877).
37. T. Ito,* S. M. Forman, C. Cao, F. Li, C. R. Eddy, Jr., M. A. Mastro, R. T. Holm, R. L. Henry, K. L. Hohn, J. H. Edgar "Self-Assembled Monolayers of Alkylphosphonic Acid on GaN Substrates" *Langmuir* **2008**, *24*, 6630-6635 (DOI: 10.1021/la800716r).
36. T. Ito,* D.-M. N. T. Perera, S. Nagasaka "Gold Electrodes Modified with Self-Assembled Monolayers for Measuring L-Ascorbic Acid: An Undergraduate Analytical Chemistry Laboratory Experiment" *J. Chem. Educ.* **2008**, *85*, 1112-1115 (DOI: 10.1021/ed085p1112).
35. T. Ito* "Observation of DNA Molecules Using Fluorescence Microscopy and Atomic Force Microscopy: An Undergraduate Instrumental Analysis Laboratory Experiment" *J. Chem. Educ.* **2008**, *85*, 680-682 (DOI: 10.1021/ed085p680).

34. Y. Li, H. C. Maire, T. Ito* "Electrochemical Characterization of Nanoporous Films Fabricated from a Polystyrene–Poly(methylmethacrylate) Diblock Copolymer: Monitoring the Removal of the PMMA Domains and Exploring the Functional Groups on the Nanopore Surface" *Langmuir* **2007**, *23*, 12771-12776 (DOI: 10.1021/la702756s).
33. S. Ibrahim, D. A. Higgins,* T. Ito* "Direct-Write Multiphoton Photolithography: A Systematic Study of the Etching Behaviors in Various Commercial Polymers" *Langmuir* **2007**, *23*, 12406-12412 (DOI: 10.1021/la7020066).
    Featured: H. Hogan "Choosing the Right Aids Direct-Write Multiphoton Photolithography" Photonic Spectra (Technology News), **2008** (January), 24-26.
32. A. Xie, T. Ito, D. A. Higgins* "Fabrication and Characterization of Polymer/Liquid-Crystal Composite Diffractive Optics by Multiphoton Methods" *Adv. Funct. Mater.* **2007**, *17*, 1515-1522 (DOI: 10.1002/adfm.200600575).
31. T. Ito,* A. A. Audi, G. P. Dible "Electrochemical Characterization of Recessed Nanodisk-Array Electrodes Prepared from Track-Etched Membranes" *Anal. Chem.* **2006**, *78*, 7048-7053 (DOI: 10.1021/ac061043m).
30. D. A. Higgins,* T. A. Everett, A. Xie, S. M. Forman, T. Ito* "High-Resolution Direct-Write Multiphoton Photolithography in Poly(methylmethacrylate) Films" *Appl. Phys. Lett.* **2006**, *88*, 184101 (DOI: 10.1063/1.2200476).
    Selected for the June 2006 issue of *Virtual Journal of Ultrafast Science.*
29. T. Nishino, T. Ito, Y. Umezawa* "A Fullerene Molecular Tip Can Detect Localized and Rectified Electron Tunneling within a Single Fullerene-Porphyrin Pair" *Proc. Natl. Acad. Sci. USA* **2005**, *102*, 5659-5662 (DOI:10.1073/pnas.0408474102).
28. T. Ito, L. Sun, R. R. Henriquez, R. M. Crooks* "A Carbon Nanotube-Based Coulter Nanoparticle Counter" *Acc. Chem. Res*. **2004**, *37*, 937-945 (DOI: 10.1021/ar040108+). [Correction: *Acc. Chem. Res.* **2005**, *38*, 687 (DOI: 10.1021/ar050133v).]
27. T. Ito, L. Sun, M. A. Bevan,* R. M. Crooks* "Comparison of Nanoparticle Size and Electrophoretic Mobility Measurements using a Carbon Nanotube-Based Coulter Counter, Dynamic Light Scattering, Transmission Electron Microscopy, and Phase Analysis Light Scattering" *Langmuir* **2004**, *20*, 6940-6945 (DOI: 10.1021/la049524t).
26. T. Ito* "Development of New Analytical Methodologies Based on Molecule/Particle Recognitions at Surfaces, Interfaces, and Carbon Nanotube Channels" (Japanese account) *Bunseki Kagaku* **2004**, *53*, 657-676 (DOI: 10.2116/bunsekikagaku.53.657).
25. R. R. Henriquez, T. Ito, L. Sun, R. M. Crooks* "The Resurgence of Coulter Counting for Analyzing Nanoscale Objects" *Analyst* **2004**, *129*, 478-482 (DOI: 10.1039/B404251B).
24. J. Dai, T. Ito, L. Sun, R. M. Crooks* "Electrokinetic Trapping and Concentration Enrichment of DNA in a Microfluidic Channel" *J. Am. Chem. Soc.* **2003**, *125*, 13026-13027 (DOI: 10.1021/ja0374776).
23. Y. Umezawa,* T. Ito "Chemically Modified Scanning Tunneling Microscopy Tips for Molecular Imaging" (Account) *Electrochemistry* **2003**, *71*, 522-529.
22. T. Nishino, T. Ito, Y. Umezawa* "Selective Observation of Hydroxy and Carboxylate Moieties by Scanning Tunneling Microscopy Using Chemically Modified Tips with Differing Extent of Hydrogen Bond Acidity or Basicity" *J. Electroanal. Chem.* **2003**, *550-551*, 125-129 (DOI:10.1016/S0022-0728(03)00027-5).
21. T. Ito, L. Sun, R. M. Crooks* "Observation of DNA Transport through a Single Carbon Nanotube Channel Using Fluorescence Microscopy" *Chem. Commun.* **2003**, 1482-1483 (DOI: 10.1039/B302511J).
20. T. Ito, L. Sun, R. M. Crooks* "Simultaneous Determination of Size and Surface Charge of Individual Nanoparticles Using a Carbon Nanotube Coulter Counter" *Anal. Chem*. **2003**, *75*, 2399-2406 (DOI: 10.1021/ac034072v).
19. T. Ito, L. Sun, R. M. Crooks* "Electrochemical Etching of Individual Multiwall Carbon Nanotubes" *Electrochemical Solid-State Lett*. **2003**, *6*, C4-C7 (DOI:10.1149/1.1526779).

18. T. Nishino, T. Ito, Y. Umezawa* “Carbon Nanotube STM Tips for Chemically Selective Imaging” *Anal. Chem.* **2002**, *74*, 4275-4278 (DOI: 10.1021/ac020215m).
17. T. Ito,* C. Goto "Ion-Selective Solvent Polymeric Membrane Electrodes Based on 1-Phenyl-3-Methyl-4-Acyl-5-Pyrazolones for Trivalent Lanthanoid Ions" *J. Trace and Microprobe Techniques* **2001***, 19,* 601-613 (DOI: 10.1081/TMA-100107595).
16. T. Ito,* C. Goto, K. Noguchi “Lanthanoid Ion-Selective Solvent Polymeric Membrane Electrode Based on 1-Phenyl-3-Methyl-4-Octadecanoyl-5-Pyrazolone” *Anal. Chim. Acta* **2001**, *443*, 41-51 (DOI:10.1016/S0003-2670(01)01192-8). (Erratum to this paper: *Anal. Chim. Acta* **2002**, *456*, 326 (DOI:10.1016/S0003-2670(02)00024-7).)
15. T. Nishino, P. Bühlmann, T. Ito, Y. Umezawa* “Scanning Tunneling Microscopy Using Chemically Modified Tips: Orientation Selective Observation of Ether Oxygens” *Surf. Sci.* **2001**, *490*, L579-L584 (doi:10.1016/S0039-6028(01)01345-0).
14. T. Ito, Y. Hasegawa* "Some Considerations on the Synergistic Extraction Behavior of Rare Earths(III) with Pivaloyltrifluoroacetone and Neutral Bidentate Ligands” *Solvent Extr. Res. Dev. Jpn.* **2001**, *8*, 47-62.
13. T. Ito* “Uphill transport of lanthanoid (III) ions through supported liquid membranes based on *ß*-diketone and Lewis bases” (Japanese) *Bunseki Kagaku* **2001**, *50*, 301-308 (DOI: 10.2116/bunsekikagaku.50.301).
12. T. Nishino, P. Bühlmann, T. Ito, Y. Umezawa* “Discrimination of Functional Groups with Scanning Tunneling Microscopy Using Chemically Modified Tips: Recognition of Ether Oxygens through Hydrogen Bond Interactions” *Phys. Chem. Chem. Phys.* **2001**, *3*, 1867-1869 (DOI: 10.1039/B100685L).
11. T. Ohshiro, T. Ito, P. Bühlmann, Y. Umezawa* “Scanning Tunneling Microscopy with Chemically Modified Tips: Discrimination of Porphyrin Centers Based on Metal-Coordination and Hydrogen Bond Interactions” *Anal. Chem.* **2001**, *73*, 878–883 (DOI: 10.1021/ac001056e).
10. T. Ito* “Ion-Channel-Mimetic Sensor for Trivalent Cations Based on Self-Assembled Monolayers of Thiol-Derivatized 4-Acyl-5-Pyrazolones on Gold” *J. Electroanal. Chem.* **2001**, *495*, 87-97 (DOI:10.1016/S0022-0728(00)00398-3).
9. T. Ito, Y. Umezawa* ”Scanning Tunneling Microscopy with Chemically Modified Tips” *Rev. Anal. Chem.* **2000**, *19*, 331–359 (DOI: 10.1515/REVAC.2000.19.5.331).
8. T. Ito, P. Bühlmann, Y. Umezawa* ”Polypyrrole-Modified Tips for Functional Group Recognition in Scanning Tunneling Microscopy” *Anal. Chem.* **1999**, *71*, 1699–1705 (DOI: 10.1021/ac980689e).
7. T. Ito, D. Citterio, P. Bühlmann, Y. Umezawa* “Observation of Silver and Hydrogen Ion Binding to Self-Assembled Monolayers with Chemically Modified AFM Tips” *Langmuir* **1999**, *15*, 2788–2793 (DOI: 10.1021/la980661y).
6. K. Odashima,* T. Ito, K. Tohda, Y. Umezawa* “A Systematic Study on the Complexation of Quaternary Ammonium Salts and Neutral Phenols” *Chem. Pharm. Bull.* **1998**, *46*, 1248–1253 (DOI: 10.1248/cpb.46.1248).
5. T. Ito, H. Radecka, K. Tohda, K. Odashima,* Y. Umezawa* ”On the Mechanism of Unexpected Potentiometric Response to Neutral Phenols by Liquid Membranes Based on Quaternary Ammonium Salts – Systematic Experimental and Theoretical Approaches” *J. Am. Chem. Soc.* **1998** *120*, 3049–3059 (DOI: 10.1021/ja973179v).
4. T. Ito, H. Radecka, K. Umezawa, T. Kimura, A. Yashiro, X. M. Lin, M. Kataoka, E. Kimura, J. L. Sessler, K. Odashima, Y. Umezawa* ”A Variety of Lipophilic Amines Incorporated in Liquid Membranes Exhibit Potentiometric Responses to Neutral Phenols” *Anal. Sci.* **1998**, *14*, 89-98 (DOI: 10.2116/analsci.14.89).
3. T. Ito, P. Bühlmann, Y. Umezawa* ”Scanning Tunneling Microscopy Using Chemically Modified Tips” *Anal. Chem.* **1998**, *70*, 255–259 (DOI: 10.1021/ac970498w).
2. T. Ito, M. Namba, P. Bühlmann, Y. Umezawa* ”Modification of Silicon Nitride Tips with Trichlorosilane Self-Assembled Monolayers (SAMs) for Chemical Force Microscopy” *Langmuir* **1997**, *13*, 4323–4332 (DOI: 10.1021/la9609783).

1. H. Sato, M. Wakabayashi, T. Ito, M. Sugawara, Y. Umezawa* "Potentiometric Responses of Ionophore-Incorporated Bilayer Lipid Membranes with and without Added Anionic Sites" *Anal. Sci.* **1997**, *13*, 437–446 (DOI: 10.2116/analsci.13.437).

Slightly- or Non-Peer-Reviewed Publications (Reviews/Monographs/Proceedings/Book Chapters): #7- are publications based on works at KSU.

14. T. Ito* "Electron Hopping through Redox Moieties Anchored to Well-Defined Nanostructures" (Invited Commentary), *Chem. Rec.* **2015**, *15*, 1148-1150 (DOI: 10.1002/tcr.201510006).
13. M. A. Reichenberger,* T. D. F. George, R. G. Fronk, P. B. Ugorowski, J. A. Geuther, J. A. Roberts, T. Ito, H. B. Vo-Le, S. R. Stevenson, D. M. Nichols, D. S. McGregor "Advances in the Development and Testing of Micro-Pocket Fission Detectors (MPFDs)" *Proceedings of IAEA International Conference on Research Reactors: Safe Management and Effective Utilization,* **2015***,* IAEA-CN-231-103.
12. T.Unruh, J. Rempe, D. McGregor, P. Ugorowski, M. Reichenberger, T. Ito, J-F. Villard "NEET Micro-Pocket Fission Detector – Final Project Report" Idaho National Laboratory, **2014**.
11. K.-H. Tran-Ba, T. Ito* "Finite-Element Computer Simulations on Cyclic Voltammograms Measured at Recessed Nanodisk-Array Electrodes" *ECS Trans.* **2013**, *45* (24), 89-95 (DOI:10.1149/04524.0089ecst).
10. S. Ibrahim, S. Nagasaka, D. S. Moore, D. A. Higgins, T. Ito* "Conductance and Flux Measurements on Capillary-Incorporated Nanoporous Monoliths" *ECS Trans.* **2012**, *41* (19), 1-13 (DOI:10.1149/1.3684481).
9. T. Ito,* D. M. N. T. Perera "Analytical Applications of Block Copolymer-Derived Nanoporous Membranes" In *Trace Analysis with Nanomaterials*, D. T. Pierce, Zao, J. X., Eds.; Wiley-VCH: Weinheim, **2010**, 341-358.
8. T. Ito* "Separation and Detection Methods Based on Nanoscale Mass Transport through a Carbon Nanotube" (review in Japanese) *Bunseki*, **2008**, 480-483.
7. T. Ito,* S. M. Forman, C. Cao, C. R. Eddy, Jr., M. A. Mastro, R. T. Holm, R. L. Henry, K. Hohn, J. H. Edgar "Monolayer Formation on GaN Surface via Self-Assembly" *ECS Trans.* **2007**, *11* (5), 97-101 (DOI:10.1149/1.2783862).
6. T. Ito* "Atomic Force Microscopy and Scanning Tunneling Microscopy with Chemically Modified Tips" (review in Japanese) *Bunseki*, **2005**, 23-29.
5. T. Ito* "Chemically Modified Tips for Atomic Force Microscopy (AFM) and Scanning Tunneling Microscopy (STM)" in *Frontiers in Methods of Analysis –Fundamentals and Applications to Nano and Biotechnology–* (in Japanese), Y. Umezawa, T. Sawada, and S. Terabe, Eds., NTS Inc., Tokyo, Japan, **2004**, 289-297.
4. Y. Umezawa,* T. Ito* "Scanning Probe Microscopy (SPM)" in *Data Book on Analytical Chemistry* (in Japanese), Japan Society of Analytical Chemistry, Eds., Maruzen, Tokyo, Japan, **2004** (September), pp 177-178.
3. T. Ito* "Scanning Probe Microscopy (STM, AFM, SECM)" in *Experiments in Instrumental Analysis* (in Japanese), Y. Umezawa, S. Motomizu, H. Watarai and N. Teramae, Eds., Tokyo Kagaku Dojin, Tokyo, Japan, **2002**, pp 260-274, 280-282.
2. T. Ito* "Scanning Probe Microscopy Using Chemically Modified Tips" (in Japanese) *Bunseki Kagaku* **1999**, *48*, 867–868 (DOI: 10.2116/bunsekikagaku.48.861).
1. Y. Umezawa,* M. Sugawara, K. Tohda, P. Buhlmann, Y. Tani, S. Nishizawa, S. Amemiya, T. Ito, N. Kimura "Chemical Sensors 1993/1994 - Ion Sensors" (in Japanese) *Chemical Sensors* **1994**, *10*, 46-60.

Patent Application

3. D. A. Higgins, T. Ito, Y. Xiao "Grayscale Patterning of Polymer Thin Films Using Direct-Write Multiphoton Photolithography" Provisional patent: July 10, 2008 (KSURF Disclosure No.: 07-21).
2. D. H. Hua; T. Ito "Synthesis and Applications of Nanomaterials derived from self-assembled diacetylenic

triglycerides" Provisional patent: January 19, 2006; Conversion filed in January 18, 2007 (PCT/US07/60669).

1. R. M. Crooks; T. Ito; L. Sun; J. Dai; R. Dhopeshwarkar "System and Method for Electrokinetic Trapping and Concentration Enrichment of Analytes in a Microfluidic Channel" Provisional patent: August 12, 2003; Conversion filed August 11, 2004 (US2005034990).

Other Publications (Not directly related to science)

5. T. Ito* "Career Path to Become a Professor in the US?", submitted to *Biophysics* (The Biophysical Society of Japan, in Japanese), **2022**, *62*, 69-70.
4. T. Ito* "My Life as a Professor at Kansas State University" (in Japanese) *Kagaku Kogaku* (The Society of Chemical Engineering, Japan), **2013**, *77* (7), 523-525.
3. T. Ito* "To Work at a University in Kansas" (in Japanese) *Chemistry Today* **2006**, *426*, 31-35.
2. T. Ito* "2003 The Japan Society for Analytical Chemistry Award for Young Researchers" (in Japanese) *Bunseki*, **2003** (September) 543.
1. T. Ito* "Texas A&M University" (in Japanese) *SUT Bulletin* **2003**, *No. 224*, 65.

List of presentations

A. Invited presentations at conferences/meetings

19. T. Ito, "Supramolecular Electrochemistry within Nanopores" *Pittcon 2021*, virtual, March 8, **2021**.
18. T. Ito, G. Ghimire, H. Coceancigh, Y. Yi "Redox-Active Block Copolymer Thin Films for Electrochemically-Controlled Catalysis" (invited oral), *54th ACS-MWRM*, Wichita, KS, October **2019**.
17. T. Ito, K.-H. Tran-Ba, H. Coceancigh, D. R. Sapkota, D. A. Higgins "Single-Molecule Fluorescence Studies of Block Copolymer Microdomains" *Pittcon 2018*, Orlando, FL, February **2018**.
16. T. Ito, H. Coceancigh, K.-H. Tran-Ba, G. Jagdale, L. A. Baker "Electrochemically-Assisted Click Reaction for Spatially-Controlled Functionalization of Cylindrical/Conical Pores in Track-Etched Poly(ethylene terephthalate) Membranes" *Pittcon 2017*, Chicago, IL, March **2017**.
15. T. Ito, G. Ghimire, Y. Yi, M. A. Derylo, L. A. Baker "Electron Propagation Through Redox-Active Microdomains in Thin Films of Side-Chain Ferrocene-Containing Diblock Copolymers" *Pittcon 2015*, New Orleans, LA, March **2015**.
14. T. Ito, K.-H. Tran-Ba, D. A. Higgins, "Cylindrical Domain Alignment and Molecular Diffusion in Block Copolymer Films Studied with Single Molecule Tracking" *Pittcon 2014*, Chicago, IL, March **2014**.
13. T. Ito "Analytical Applications of Cylinder-Forming Block Copolymers" *48th Midwest Regional Meeting of the American Chemical Society*, Springfield, MO, October **2013**.
12. T. Ito, F. Li "Recessed Nanodisk-Array Electrodes with Ferrocene-Functionalized Nanopores for Electrochemical Sensing" *Pittcon 2013*, Philadelphia, PA, March **2013**.
11. T. Ito "Self-Organized Nanostructured Materials for Chemical Sensing" *47th Midwest Regional Meeting of the American Chemical Society*, Omaha, NE, October **2012**.
10. T. Ito "Electrochemistry in Block-Copolymer-Derived Nanodomains" *2010 Eletrochemistry Gordon Conference*, Ventura, CA, January **2010**.
9. T. Ito "Analytical Applications of Nanoporous Membranes Derived from Diblock Copolymers" *FACSS 2009*, Louisville, KY, October **2009**.
8. T. Ito "Unique Separation and Detection Methods Based on Mass Transport through Nanoscale Pores" *Pittcon 2009 (The State-of-the-Art Technologies from Japan 1: Analytical Instruments with Nano-Technology)*, Chicago, March **2009**.
7. T. Ito, Y. Li "Bioanalytical Applications of Nanoporous Membranes Derived from Diblock Copolymers"

Pittcon 2009 (Young Investigators in Bioanalytical Chemistry), Chicago, March **2009**.

6. T. Ito, Y. Li "Surface Chemical Functionalization of Cylindrical Nanopores Derived from a Polystyrene-Poly(methylmethacrylate) Diblock Copolymer Via Amidation" 43nd Midwest Regional Meeting of the American Chemical Society, Kearney, NE, October **2008**.
5. T. Ito "Undergraduate Lab Experiments Involving Nanoscience: Vitamin C Sensors Based on Monolayers and Microscopic Observation of DNA Molecules" Kansas College Chemistry Teacher's Conference, Manhattan, KS, April **2008**.
4. T. Ito, Y. Li, H. C. Maire "Electrochemical Characterization of Nanoporous Films Fabricated from a Polystyrene–Poly(methylmethacrylate) Diblock Copolymer: Monitoring the Removal of the PMMA Domains and Exploring the Functional Groups on the Nanopore Surface" *Pittcon 2008*, New Orleans, March **2008**.
3. T. Ito, S. M. Forman, C. Cao, F. Li, C. R. Eddy, Jr., M. A. Mastro, R. T. Holm, R. L. Henry, K. Hohn, J. H. Edgar "Monolayer Formation on GaN Surface via Self-Assembly" *212th Electrochemical Society Meeting*, Washington DC, October **2007**.
2. T. Ito "Multiphoton Photolithography: Fundamental Studies and Applications." *International Open Symposium on Nanoscience and Nanotechnology*, Noda, Japan; January **2007**.
1. T. Ito "Development of chemically-selective STM with chemically modified tips and of a nanotube-based individual particle counter." (Japanese) (Invited presentation for the Japan Society for Analytical Chemistry Award for Young Researchers) *52th Annual Meeting of the Japan Society for Analytical Chemistry*, Sendai, Japan; September **2003**.

B. Schools, National Labs

41. T. Ito, "Electrochemical Approaches to the Growth of Metal Organic Framework Thin Films", Department of Chemistry, University of Kansas, November 7, 2022.
40. T. Ito, "My Research at Kansas State University", *Department of Chemistry, Tokyo University of Science*, June **2022**.
39. T. Ito, "Single-Molecule Fluorescence Studies on Molecular Diffusional Dynamics in Nanoporous Materials" (virtual), *Center for Nanoscale Materials, Argonne National Laboratory*, November **2021**.
38. T. Ito, "Fundamental Investigations of Chemical Processes in Nanoscale Media for Chemical Separations and Sensing" (virtual), Heavy Element Chemistry and Separation Science Group. Argonne National Laboratory, April **2021**.
37. T. Ito "Dynamic Molecular Behavior within Cylindrical Nanostructures Derived from Block Copolymer Microdomains" *Department of Chemistry, Indiana University, Bloomington*, September **2018**.
36. T. Ito "Single-Molecule Diffusion Dynamics in Surfactant-Filled Cylindrical Silica Mesopores" *Department of Chemistry, Tokyo University of Science*, May **2017**.
35. T. Ito "Single-Molecule Diffusion Dynamics in Surfactant-Filled Cylindrical Silica Mesopores" *Department of Chemistry, The University of Tokyo*, May **2017**.
34. T. Ito "Single-Molecule Diffusion Dynamics in Surfactant-Filled Cylindrical Silica Mesopores" *National Institute of Materials Science (NIMS)*, May **2017**.
33. T. Ito "Single-Molecule Diffusion Dynamics in Surfactant-Filled Cylindrical Silica Mesopores" *Department of Chemistry, Okayama University*, May **2017**.
32. T. Ito, "Single-Molecule Fluorescence Studies of Block Copolymer Microdomains" *Department of Applied Chemistry, Utsunomiya University,* May **2016** (*The Chemical Society of Japan, Tochigi Region Seminar*).
31. T. Ito, "Single-Molecule Fluorescence Studies of Block Copolymer Microdomains" *Department of Chemistry, The University of Tokyo,* May **2016** (1614th Zasshikai Seminar).
30. T. Ito, "Single-Molecule Fluorescence Studies of Block Copolymer Microdomains" *Department of*

Chemistry, Tokyo University of Science, May **2016**.

29. T. Ito, "Single-Molecule Fluorescence Studies of Block Copolymer Microdomains" *Department of Applied Chemistry, Keio University,* May **2016**.
28. T. Ito, "Single-Molecule Fluorescence Studies of Block Copolymer Microdomains" *Department of Macromolecular Science and Engineering, Kyoto Institute of Technology,* May **2016**.
27. T. Ito, "Single-Molecule Fluorescence Studies of Block Copolymer Microdomains" *Research Institute for Chemical Process Technology, National Institute of Advanced Industrial Science and Technology (AIST),* May **2016**.
26. T. Ito, "Single-Molecule Fluorescence Studies of Block Copolymer Microdomains" *The Society of Applied Spectroscopy Tour Seminar, Department of Chemistry, Eastern Michigan University*, April **2016**.
25. T. Ito, "Single-Molecule Fluorescence Studies of Block Copolymer Microdomains" *Department of Chemistry, University of Notre Dame*, January **2016**.
24. T. Ito, "Investigations of Mass and Charge Transport within Cylindrical Nanostructures Derived from Block Copolymer Microdomains" *Department of Chemistry, University of Kansas*, January **2015**.
23. T. Ito "Single Molecule Tracking (SMT) for Investigation of Cylindrical Microdomain Alignment and Molecular Diffusion in Diblock Copolymer Films" *Department of Chemistry, SUNY Buffalo State*, May **2014**.
22. T. Ito "Block Copolymer-Based Nanostructures for Analytical Applications" *Department of Chemistry, University of Alabama*, Tuscaloosa, AL, November **2013**.
21. T. Ito "Block Copolymer-Based Nanostructures for Analytical Applications" *Department of Chemistry, University of South Dakota*, Vermillion, SD, October **2013**.
20. T. Ito "Block Copolymer-Based Nanostructures for Analytical Applications" *Department of Chemistry, Iowa State University*, Ames, IA, April **2013**.
19. T. Ito "Block Copolymer-Derived Nanoporous Materials for Chemical Sensing" *Graduate School of Nanoscience and Technology, KAIST,* Daejeon, South Korea, May **2012**.
18. T. Ito "Block Copolymer-Derived Nanoporous Materials for Chemical Sensing" *Department of Bionano Engineering, Hanyang University,* Ansan, South Korea, May **2012**.
17. T. Ito "Block Copolymer-Derived Nanoporous Materials for Chemical Sensing" *Department of Chemistry, Tohoku University,* Sendai, Japan, May **2012**.
16. T. Ito "Block Copolymer-Derived Nanoporous Materials for Chemical Sensing" *Department of Applied Chemistry, Utsunomiya University,* Utsunomiya, Japan, May **2012** (*The Chemical Society of Japan, Tochigi Region Seminar*).
15. T. Ito "Block Copolymer-Derived Nanoporous Materials for Chemical Sensing" *Department of Chemistry, Tokyo University of Science,* Tokyo, Japan, May **2012**.
14. T. Ito "Block Copolymer-Derived Nanoporous Materials for Chemical Sensing" *Department of Chemistry, The University of Tokyo,* Tokyo, Japan, May **2012**.
13. T. Ito "Block Copolymer-Derived Nanoporous Materials for Chemical Sensing" *Department of Applied Chemistry, Keio University,* Yokohama, Japan, May **2012**.
12. T. Ito "Block Copolymer-Derived Nanoporous Materials for Chemical Sensing" *Department of Chemistry, Georgia State University,* Atlanta, Georgia, March **2012**.
11. T. Ito "Block Copolymer-Derived Nanoporous Materials for Chemical Sensing" *Department of Chemistry, Auburn University,* Auburn, Alabama, March **2012**.
10. T. Ito "Mass and Charge Transport within Block-Copolymer-Derived Nanopores" *Department of Chemistry, University of Nebraska, Lincoln,* Lincoln, Nebraska, April **2010**.
9. T. Ito "Block-Copolymer-Derived Nanoscale Domains for Analytical Applications" *Department of Chemistry, University of Louisville,* Louisville, Kentucky, October **2009**.

8. T. Ito "Characterization, Functionalization and Applications of Nanoporous Membranes Derived from Polystyrene-Poly(methylmethacrylate) Diblock Copolymers" *Department of Chemistry, Wichita State University,* Wichita, Kansas, April **2009**.
7. T. Ito "Characterization, Functionalization and Applications of Nanoporous Membranes Derived from Polystyrene-Poly(methylmethacrylate) Diblock Copolymers" *Department of Chemistry and Biochemistry, University of Texas at Austin,* Austin, Texas, November **2008**.
6. T. Ito "Multiphoton Photolithography: Fundamental Studies and Applications" *Department of Chemistry, Pittsburg State University,* Pittsburg, Kansas, November **2006**.
5. T. Ito, Li Sun, Richard M. Crooks "Analytical Applications of Single Carbon Nanotube Membranes" *Department of Chemistry, University of Kansas,* Lawrence, Kansas, October **2004**.
4. T. Ito "Analytical Applications of Single Carbon Nanotube Membranes" *Nanoarchitectonics Research Center, National Institute of Advanced Industrial Science and Technology (AIST),* Tsukuba, Japan; June **2004**.
3. T. Ito "Development of Analytical Methods for Nanometer-Scale (2-100 nm) Targets" *Department of Chemistry, The University of Tokyo,* Tokyo, Japan; June **2004**.
2. T. Ito "Analytical Applications of Single Carbon Nanotube Membranes" *Department of Applied Chemistry, Utsunomiya University,* Utsunomiya, Japan; June **2004** (*Symposium of JSAC and CSJ at Utsunomiya Region).*
1. T. Ito "Analytical Applications of Single Carbon Nanotube Membranes" *Chemical Resources Laboratory, Tokyo Institute of Technology,* Yokohama, Japan; June **2004**.

C. In KSU Campus

9. T. Ito, "Sabbatical at Argonne National Laboratory", *Department of Chemistry, Kansas State University*, September 8, **2022**.
8. T. Ito "Investigation of Chemical Processes in Cylindrical Nanopores", *Physical Chemistry Seminar, Kansas State University*, Manhattan, KS, October 22, **2019**.
7. T. Ito "Self-Organized 1D Nanostructures for Analytical Applications" *Department of Chemistry, Kansas State University*, Manhattan, KS, September **2013**.
6. T. Ito "Block-Copolymer-Derived Nanoscale Domains for Analytical Applications" *Department of Chemistry, Kansas State University*, Manhattan, KS, USA, September **2009**.
5. T. Ito "Direct Observation of Molecules" (20 minute talk) *1st Annual Chemistry Symposium at Kansas State University*, May **2007**.
4. T. Ito "Fabrication and Characterization of Nanopore-Array Electrodes" *KSU Chemistry Department Seminar* (Midtenure seminar), April **2007**.
3. T. Ito "Study on Chemical Interactions within Nanopores for Developing Biosensors" *Condensed Matter Seminar (Physics Department, KSU)*, Manhattan, KS, USA, December **2005**.
2. T. Ito "Study on Chemical Interactions within Nanopores for Developing Biosensors" *Seminar Series of "Center for Sensors and Sensor Systems (KSU Targeted Excellence Program)"* (1st seminar), Manhattan, KS, USA, November **2005**.
1. T. Ito "Biosensing Based on an Electrode Coated with a Nanopore-Array Membrane" *Chemical Engineering Seminar, Kansas State University*, Manhattan, Kansas, December **2004**.

D. Others

7. T. Ito, D. A. Higgins "Molecular-Level Investigations of Diffusion Behavior within Cylindrical Nanoscale Pores" (oral), *2021 DOE Separation Science Program Meeting*, virtual, August **2021**.
6. D. A. Higgins, T. Ito, R. Kumarasinghe "On the Importance of Nanoconfinement in Chemical Separations:

Quantitative Measurements of Dye Diffusion and Orientational Confinement in Surfactant-Filled Mesoporous Silica" (poster), *2019 DOE BES/Separation Science Research PI Meeting*, Gaithersburg, MD, September **2019**.

5. T. Ito, D. A. Higgins, H. Xu, G. Ghimire, S. Nagasaka, R. Espinoza, M. M. Moore, R. Leuschen, N. Kameta, M. Masuda "Molecular Diffusion in Self-Assembled Organic Nanotubes Studied Using Imaging Fluorescence Correlation Spectroscopy" (poster), *2019 DOE BES/Separation Science Research PI Meeting*, Gaithersburg, MD, September **2019**.
4. T. Ito, R. Kumarasinghe, D. A. Higgins "Diffusion and Partitioning Behavior of Fluorescent Single Molecules within Surfactant-Filled Cylindrical Silica Nanopores", *2018 DOE BES/Separation Science Research PI Meeting*, Gaithersburg, MD, February **2018**.
3. T. Ito, D. A. Higgins, R. Pramanik, K.-H. Tran-Ba, S. C. Park, H. Xu, R. Kumarasinghe, D. Sapkota, K, Robben "Molecular-Level Investigation of Diffusion Behaviors within Cylindrical Nanoscale Pores" *2014 DOE Separations and Analysis Research Meeting*, Gaithersburg, MD, April **2014**.
2. T. Ito, D. A. Higgins "Molecular-Level Investigation of Diffusion Behaviors within Cylindrical Nanoscale Pores" (poster) *2012 DOE Separations and Analysis PI Meeting*, Annapolis, MD, April **2012**.
1. T. Ito, D. A. Higgins, T. Everett, S. Ibrahim, K. H. Tran Ba, S. C. Park "Molecular-Level Investigation of Diffusion Behaviors within Cylindrical Nanoscale Pores" *2010 DOE Separations and Analysis Research Meeting*, Baltimore, MD, April **2010**.

E. Contributed oral presentations

23. T. Ito, T. Gadzikwa, S. Seifert, A. Uysal, "In Situ Synchrotron X-Ray Scattering Measurements of Cathodic ZIF-8 Deposition on Graphite Using 3D-Printed Electrochemical Cells", *Pittcon 2023*, March **2023**.
22. T. Ito, D. R. Sapkota, K.-H. Tran-Ba, D. A. Higgins "Single-molecule tracking studies of the effects of solvent swelling on the properties of cylindrical block copolymer microdomains" *Pittcon 2016*, Atlanta, GA, March **2016**.
21. T. Ito, G. Ghimire, Y. Yi, M. A. Derylo, L. A. Baker "Electrochemical Studies of Thin Films of Side-Chain Ferrocene-Containing Diblock Copolymers" *228th ECS Meeting*, Phoenix, AZ, October **2015**.
20. T. Ito "Self-Organized Nanostructured Thin Films for Label-Free Electrochemical Sensing" *MUACC 2014*, Ames, IA, October **2014**.
19. T. Ito, B. Pandey, C. B. Cox, P. S. Thapa "Preparation of Self-Organized Nanoporous Anodic Gallium Oxide and Its Potentiometric Behavior" *226th ECS Meeting,* Cancun, Mexico, October **2014**.
18. B. Pandey, C. Cox, T. Ito "Self-Organized Nanoporous Anodic Gallium Oxide as a Sensor Material" *246th National ACS National Meeting*, Indianapolis, IN, September **2013**.
17. T. Ito, F. Li "Electrochemical Sensing Based on Redox-Involved Electron Propagation through Ferrocenes Anchored to Electrode-Supported Cylindrical Nanopores" *223th ECS Meeting*, Toronto, ON, Canada, May **2013**.
16. T. Ito, K. H. Tran Ba "Finite-Element Computer Simulations on Cyclic Voltammograms Measured at Recessed Nanodisk-Array Electrodes" *221st ECS Meeting, Seattle, WA*, May **2012**.
15. T. Ito, S. Ibrahim, S. Nagasaka, D. S. Moore, D. A. Higgins "Conductance and Flux Measurements on Capillary-Incorporated Nanoporous Monoliths Derived from Block Copolymer" *Pittcon 2012, Orlando, FL,* March **2012**.
14. T. Ito, S. Ibrahim, S. Nagasaka, D. A. Higgins "Conductance and Flux Measurements within Microcapillary-Incorporated Nanoporous Monoliths Derived from Cylinder-Forming Polystyrene-Poly(methylmethacrylate) Diblock Copolymers" *220th Electrochemical Society Meeting*, Boston, MA, October **2011**.
13. D. M. N. T. Perera, T. Ito "Organic Solvent-Induced Permeability Changes of PS-*b*-PMMA-Derived

Nanoporous Films Studied Using Electrochemical Impedance Spectroscopy" *218th Electrochemical Society Meeting*, Las Vegas, ND, October **2010**.

12. T. Ito "Analytical Applications of Diblock Copolymer Derived Nanoporous Membranes" *2008 Midwest Universities Analytical Chemistry Conference (MUACC),* Bloomington, IN; November **2008**.
11. T. Ito, Y. Li "Electrochemical Characterization and Application of Chemically Functionalized Cylindrical Nanopores Prepared from a Diblock Copolymer" (10-min talk at the Open Session) *Gordon Research Conference on Electrochemistry*, Ventura, CA; January **2008**.
10. T. Ito, Y. Li, H. C. Maire "Electrochemical Characterization of the Surface Charge of Nanoscale Pores in Nanoporous Films Fabricated from a Polystyrene-Poly(methylmethacrylate) Diblock Copolymer" *42nd Midwest Regional Meeting of the American Chemical Society*, Kansas City, MO, November **2007.**
9. T. Ito, D.-M. N. Perera "Electrochemical Studies of Recessed Nanodisk-Array Electrodes Prepared from Track-Etched Membranes" *211th Electrochemical Society Meeting*, Chicago, IL, May **2007**.
8. T. Ito, L. Sun, M. A. Bevan, R. M. Crooks "Analytical Applications of Coulter Counters Based on a Multiwall Carbon Nanotube (MWNT)" *205th Meeting of the Electrochemical Society*, San Antonio, TX, USA, May **2004**.
7. T. Ito, L. Sun, R. M. Crooks "Detection of DNA with a Single Carbon Nanotube Channel" *2003 Pittsburgh Conference*, Orlando, FL, USA, March **2003**.
6. T. Ito, K. Noguchi, C. Goto, Y. Hasegawa "Potentiometric Responses to Trivalent Lanthanoid Ions with Liquid Membranes Based on 4-Acyl-5-Pyrazolones"(Japanese) *49th Annual Meeting of the Japan Society for Analytical Chemistry*, Okayama, Japan; October **2000**.
5. T. Ito, P. Bühlmann, Y. Umezawa "Scanning Tunneling Microscopy with Polypyrrole-Modified Tips" (Japanese) *60th Spring Meeting of the Japan Society for Analytical Chemistry*, Hirosaki, Japan; May **1999**.
4. T. Ito, P. Bühlmann, Y. Umezawa "Fundamental Study of Scanning Probe Microscopy with Chemically Modified Tips " (Japanese) *STM/AFM Symposium: Recent Progress of Scanning Probe Microscopy and its Application to Surface Organic Molecules*, Osaka, Japan; January **1998**.
3. T. Ito, P. Bühlmann, Y. Umezawa "Scanning Tunneling Microscopy with Chemically Modified Tips" (Japanese) *46th Annual Meeting of the Japan Society for Analytical Chemistry*, Tokyo, Japan; October **1997**.
2. T. Ito, K. Tohda, K. Odashima, Y. Umezawa "Mechanism of Unexpected Potentiometric Responses to Uncharged Phenols Observed with Liquid Membranes Based on Quaternary Ammonium Salts " (Japanese) *57th Spring Meeting of the Japan Society for Analytical Chemistry*, Matsuyama, Japan; May **1996**.
1. T. Ito, K. Tohda, H. Radecka, R. Naganawa, K. Odashima, Y. Umezawa "Potentiometric Responses to Neutral Phenols by Liquid Membranes Based on Quaternary Ammonium Salts" (Japanese) *Fall Meeting of the Electrochemical Society of Japan*, Yokohama, Japan; September **1994**.

F. Posters

12. T. Ito, S. G. Jenkins, E. Frenk, S. Seifert, "Electrochemically-Controlled Growth of Mixed-Metal MOF Films" *2024 Gordon Research Conference on Electrochemistry*, Ventura, CA; January 8, **2024**.
11. T. Ito, F. Li, K.-H. Tran-Ba, D. A. Higgins "Block Copolymer-Based Nanostructures for Analytical Applications" *2013 Gordon Research Conference on Macromolecular Materials*, Ventura, CA; January **2013**.
10. T. Ito, Y. Li "Electrochemical Characterization and Application of Chemically Functionalized Cylindrical Nanopores Prepared from a Diblock Copolymer" *Gordon Research Conference on Electrochemistry*, Ventura, CA; January **2008**.
9. T. Ito, S. M. Forman, T. A. Everett, A. Xie, X. Yao, D. A. Higgins "Fabrication of ITO Recessed Microelectrodes with Direct-Write Multiphoton Lithography" *2006 Gordon Research Conference on Electrochemistry*, Buellton, CA, USA, February **2006**.

8. T. Ito, A. A. Audi, H. C. Maire "Nanopore-Array Electrodes for Chemical Sensing" *2005 Gordon Research Conference on Electrochemistry*, Ventura, CA, USA, February **2005**.
7. T. Ito, L. Sun, R. M. Crooks"Observation of Mass Transport through a Single Carbon Nanotube Channel" *2002 Gordon Research Conference on Electrochemistry*, Ventura, CA, USA, January **2002**.
6. T. Ito, Y. Hasegawa "Ion-Channel-Mimetic Sensing of Trivalent Cations Based on Self-Assembled Monolayers of Thiol-Derivatized 4-Acyl-5-Pyrazolone on Gold" *PACIFICHEM2000*, Honolulu, Hawaii, USA, December **2000**.
5. T. Ito, P. Bühlmann, T. Ohshiro, T. Nishino, Y. Umezawa "Scanning Tunneling Microscopy with Chemically Modified Tips" *3rd International Forum on Chemistry of Functional Organic Chemicals (IFOC-3)*, Tokyo, Japan; July **2000**.
4. T. Ito, P. Bühlmann, T. Ohshiro, T. Nishino, Y. Umezawa "Scanning Tunneling Microscopy with Chemically Modified Tip for Selective Observation of Surface Chemical Species" (Japanese) *3rd Tokyo Symposium of Analytical Chemistry,* Chiba, Japan; September **1999**.
3. T. Ito, K. Nakaya, N. Ugawa, Y. Hasegawa "Thermodynamic and Spectroscopic Study of the Adduct Formation of Tris(b-diketonato)lanthanoids with Heteroamines" *Asianalysis V*, Xiamen, China; May **1999**.
2. T. Ito, M. Miratsu, K. Nakaya, I. Matsubayashi, T. Saito, Y. Hasegawa "Effect of Hydration to Metal Chelates on Solvent Extraction" (Japanese) *2nd Tokyo Symposium of Analytical Chemistry,* Chiba, Japan; September **1998**.
1. T. Ito, P. Bühlmann, Y. Umezawa "Scanning Tunneling Microscopy Using Chemically Modified Tips" *UT (University of Tokyo) -SNU (Seoul National University) Joint Seminar on Chemistry*, Tokyo, Japan; June **1998**.

Financial Support

External Grants (in the US)

15. NSF, Division of Chemistry, Chemical Measurement and Imaging Program (CHE- 2305013)
"Collaborative Research: Single-Molecule Electrofluorochromic Sensing"
08/01/23-07/31/26 $644,658 ($436.929 for KSU)
Role: PI (Co-PI: A. H. Flood, Indiana Univ.).

14. Department of Energy, Office of Energy Research, Office of Basic Energy Science, Division: Chemical Sciences, Geosciences and Biosciences (DE-SC0002362)
"Molecular-Level Investigations of Diffusion Behavior within Cylindrical Nanoscale Pores"
10/16/21-10/15/24 $475,000
Role: PI (Co-PI: D. A. Higgins)

13. Department of Energy, Office of Energy Research, Office of Basic Energy Science, Division: Chemical Sciences, Geosciences and Biosciences (DE-SC0002362)
"Molecular-Level Investigations of Diffusion Behavior within Cylindrical Nanoscale Pores"
05/15/19-08/14/21 $310,000
Role: PI (Co-PI: D. A. Higgins)

12. NSF (CHE-MPS/CHE-Undergraduate Programs in Chemistry)
"REU Site: Research Experiences for Undergraduates in Chemistry at Kansas State University"
5/1/19-4/30/22, $344,225
Role: Senior Personnel (PI: C. T. Culbertson; Co-PI: S. H. Bossmann).

11. NSF, (MRI; CHE-1826982)
"MRI: Acquisition of a 400-MHz NMR Spectrometer to Support Research Projects from C-H Bond

Oxidation to Engineered Molecular Materials"
8/01/18-7/31/21 $416,212
Role: Senior Personnel (PI: D. H. Hua; Co-PIs: J. Li, D. A. Higgins, E. J. McLaurin, S. H. Bossmann).

10. NSF, Division of Chemistry, Chemical Measurement and Imaging Program (CHE-1709285)
"Collaborative Research: Understanding of the Design Principles of Modular Nanopores for Highly Efficient Chemical Sensing"
08/15/17-07/31/22 $255,645
Role: PI
(At Indiana University (CHE-1709625, $234,000), PI A. H. Flood and co-PI, Y. Yi)

9. DOE, Office of Energy Research, Office of Basic Energy Science, Division: Chemical Sciences, Geosciences and Biosciences (DE-SC0002362)
"SISGR: Molecular-Level Investigations of Diffusion Behavior within Cylindrical Nanoscale Pores"
05/15/16-05/14/19 $452,000 (+ $25,000 match from KSU)
Role: PI (Co-PI: D. A. Higgins)

8. NSF (CHE-MPS/CHE-Undergraduate Programs in Chemistry; CHE-1460989)
"REU Site: Research Experiences for Undergraduates in Chemistry at Kansas State University"
6/15/15-5/31/18 $345,000
Role: Senior Personnel (PI: C. T. Culbertson; Co-PI: S. H. Bossmann)

7. DOE, Office of Energy Research, Office of Basic Energy Science, Division: Chemical Sciences, Geosciences and Biosciences (DE-SC0002362)
"SISGR: Molecular-Level Investigations of Diffusion Behavior within Cylindrical Nanoscale Pores"
09/15/12-05/14/16 $720,000
Role: PI (Co-PI: D. A. Higgins)

6. DOE, Office of Energy Research, Office of Basic Energy Science, Division: Chemical Sciences, Geosciences and Biosciences (DE-SC0002362), Supplemental request
"SISGR: Molecular-Level Investigation of Diffusion Behaviors within Cylindrical Nanoscale Pores"
09/15/11-09/14/12 $27,305 (+ $13,668 match from KSU)
Role: PI (Co-PI: D. A. Higgins)

5. NSF (CHE-MPS/CHE-Undergraduate Programs in Chemistry; CHE-1004991)
"REU Site: Research Experiences for Undergraduates in Chemistry at Kansas State University"
07/15/10-06/30/14 $345,000
Role: Senior Personnel (PI: C. T. Culbertson; Co-PI: S. H. Bossmann)

4. NSF (MRI; OIA-0923499)
"MRI: Acquisition of a Field Emission Scanning Electron Microscope for Kansas State University"
09/01/09-03/31/12 $518,928
Role: Senior Personnel (PI: J. H. Edgar; Co-PI: V. Berry, J. Li, C. M. Sorensen)

3. DOE, Office of Energy Research, Office of Basic Energy Science, Division: Chemical Sciences, Geosciences and Biosciences (DE-SC0002362)
"SISGR: Molecular-Level Investigation of Diffusion Behaviors within Cylindrical Nanoscale Pores"
09/15/09-09/14/12 $720,000 (+ $38,000 match from KSU)
Role: PI (Co-PI: D. A. Higgins)

2. NSF Kansas EPSCoR RFP Planning and Innovation Grants (NSF 43529)
"Assembly and Properties of Functionalized Carbon Nanotubes"
01/01/07-12/31/07 $40,800
Role: Co-PI (PI: C. Aakeroy; Co-PI: D. H. Hua, D. A. Higgins, T. Ito)

1. ACS PRF Type G Grant (ACS PRF# 46192-G5)
   "Surface Chemistry of Diblock-Copolymer-Based Nanoporous Materials"
   01/01/07-08/31/09 $40,000
   Role: PI

Argonne National Lab

1. UChicago Argonne, LLC (1F-60559) - DOE - Office of Science - Argonne National Laboratory (DE-AC02-06CH11357)
   "Separation Science in Situ and under Confinement" (for sabbatical at ANL),
   9/1/21-5/13/22 $87,227
   Role: PI

2. Advanced Photon Source (APS) Beamline
   "In Situ SAXS/WAXS Measurements of Electrochemical Growth of Metal Organic Frameworks in Nanoconfined Space"
   • GUP75942, 10/1/21-9/30/23, 12 shifts (Ahmet Uysal (PI), Takashi Ito (actual PI), Lynda Soderholm, Soenke Seifert): 3 shifts on Oct 24, 2021, and 3 shifts on April 13, 2022.
   • GUP79225, 5/1/22-4/30/23, 9 shifts (Takashi Ito (PI), Ahmet Uysal, Soenke Seifert): 3 shifts on June 12, 2022.
   "In Situ SAXS/WAXS Measurements of Electrochemically-Assisted Growth of Metal Organic Frameworks on Insulator Surface"
   • GUP81864, 1/31/23-4/17/23, 6 shifts (Takashi Ito (PI), Ahmet Uysal, Soenke Seifert): 3 shifts on February 19, 2023, and 3 shifts on March 16, 2023.

3. Center for Nanoscale Materials (CNM) User Facility
   "Nanostructured Materials for Membrane Separation Studies"
   • CNM 77294, 12/1/21-12/31/22 (Takashi Ito (PI) and Ahmet Uysal).
   "Characterization of Nanostructured Materials Designed for Membrane Separations"
   • CNM 82525, 1/25/23-4/24/23 (Takashi Ito (PI)).
   "Structural and Compositional Characterization of Electrochemically-Fabricated MOF Thin Films for Membrane Separations"
   • CNM 83297, 1/1/24-12/31/24 (Takashi Ito (PI)).

Internal Grants (at KSU)

8. KSU-Chemistry Department Exploratory Research Award 2020
   "Nanoconfined Crystal Formation Controlled by Electrochemical Processes"
   09/09/20-08/31/21 $2,500
   Role: PI

7. KSU-Terry C. Johnson Center for Basic Cancer, Graduate Student Summer Stipend- 2010
   "Fabrication of Ultrathin PS-*b*-PMMA-Derived Nanoporous Membranes for Quick and Selective Molecular Separation"
   05/15/10-8/14/10 $4,451
   Role: PI

6. KSU-Terry C. Johnson Center for Basic Cancer, Graduate Student Summer Stipend- 2009
   "Systematic Investigation of Molecular Separation Using PS-*b*-PMMA-Derived Nanoporous Membranes"
   05/15/09-08/14/09 $4,000
   Role: PI

5. KSU-University Small Research Grant (USRG)-Spring 2008
   "Computer Simulation of Biological Separation within Nanostructured Channels Fabricate Using Multiphoton Photolithography"

07/15/08-01/15/09 $1,500
Role: PI

4. KSU-Terry C. Johnson Center for Basic Cancer, Graduate Student Summer Stipend- 2008
"Fundamental Study of Molecular Mass Transport through PS-*b*-PMMA-Derived Cylindrical Nanopores"
05/15/08-08/14/08 $4,184
Role: PI

3. KSU-Terry C. Johnson Center for Basic Cancer, Research Innovative Research Award-Spring 2008
"Development of Customized Diblock Copolymer-Derived Microprobes for Sampling Tumor Markers"
05/15/08-05/14/09 $22,000
Role: PI

2. KSU-University Small Research Grant (USRG)-Spring 2005
"Ion-Selective Potentiometric Sensors Based on Thin Films for Microfluidic Devices"
07/01/05-06/30/06 $1,500
Role: PI

1. KSU Targeted Excellence Program
"Center for Sensors and Sensor Systems"
07/01/05-06/30/08 $1,500,000
Role: Contributor (PI: G. Singh, D. McGregor and J. H. Edgar)

External Grants in Japan (Researcher Number: 50307691)

2. Grant-in-Aid for Encouragement of Young-Scientists (A), Ministry of Education, Science, Sports and Culture, Japan (No. 11740413)
"Development of Analytical Methods Based on the Chemical Recognition Ability of Lanthanoid Chelate Complexes at the Solid-Liquid Interface"
04/01/99-03/31/01 ¥2,300,000
Role: PI

1. Grant-in-Aid for Scientific Research (B), Ministry of Education, Science, Sports and Culture, Japan (No. 11554034)
"Scanning Tunneling Microscopy with Chemically-Modified Carbon Nanotube Tips"
04/01/99-03/31/01 ¥13,000,000
Role: Co-PI (PI: P. Buhlmann)

Graduate Students Mentored (at KSU, Chemistry)

12. Anuththara Karunarathna (November 2023 –)
11. Zeinab Harandizadeh (PhD, 2020)
: in Baltimore
"Application of Block Copolymer Thin Film as a Platform for Electroless Deposition and Biosensor"
2019 Meloan Award-KSU (summer fellowship)
2017 International Coordinating Council (ICC) Scholarship -KSU
2017 Graduate Student Classroom Award-KSU
10. Herman Coceancigh (PhD, 2019)
: ICP supervisor, Geoanalytical group, Saskatchewan Research Council, Canada.
"Material Modification and Characterization Based on Small Molecule Diffusion"
2019 Invited talk at the *54th ACS-MWRM*, Wichita, KS, October **2019.**
2019 Graduate Research Award-KSU
2018 Fateley-Hammaker Collaboration Award-KSU
2018 Alumni Award-KSU

2016 Graduate Student Classroom Award-KSU
2014-16 Fulbright Scholar

9. Dr. Govinda Ghimire (PhD, 2019)
: Postdoc at Florida International Univ.
"Charge transport and molecular diffusion within self-assembled nanostructures"
2018 Alumni Award-KSU
2017 Meloan Award in Analytical Chemistry-KSU

8. Dol Raj Sapkota (MS, 2016)
: in Texas
"Single Molecule Tracking Studies of Solvent-Swollen Microdomains in Cylinder-Forming Polystyrene-Poly(ethylene oxide) Diblock Copolymer Films"

7. Dr. Khanh-Hoa Tran-Ba (PhD, 2015)
: Assist. Prof. at Towson Univ., MD.
"Single-Molecule Diffusion Measurements for Material Characterization in One-Dimensional Nanostructured Polymer Films"
2014 PLU Graduate Research Award-KSU
2013 Ohno Award-KSU
2012 Meloan Award in Analytical Chemistry -KSU
2012 Fateley-Hammaker Collaboration in Research Award-KSU
2011 Graduate Student Classroom Award-KSU
2011 Travel Award from Scott Fateley Memorial Fund–KSU
2010 Twelfth National School on Neutron and X-ray Scattering at Argonne National Laboratory and Oak Ridge National Laboratory (June 12-26)

6. Dr. Bipin Pandey (PhD, 2013)
: Assist. Prof. at Pensacola State College, FL.
"Self-Organized Nanoporous Materials for Chemical Separations and Chemical Sensing"
2013 Chemistry Department Research Award-KSU

5. Dr. Feng Li (PhD, 2013)
: Senior Scientist at Boehringer Ingelheim.
"Self-Assembled Thin Polymer Film Used For Sensing Application"
2012 Chemistry Department Research Award-KSU
2010 Travel Award from Scott Fateley Memorial Fund–KSU

4. Chrishani M. De Silva (Chrishani T. Devaadithya Gardiya Wasam Li) (MS, 2013)
: unknown
"Adsorption of Primary Substituted Hydrocarbons onto Solid Gallium Substrates"

3. Dr. D. M. Neluni T. Perera (PhD, 2010)
: Lecturer at Central College, IA.
"Study of permeability changes induced by external stimuli on chemically modified electrodes"

2. Dr. Shaida Ibrahim (PhD, 2010)
: in Houston, TX.
"Fabrication and characterization of sub-micron and nanoscale structures in commercial polymers"
2009 Chemistry Department Research Award-KSU
2007 Graduate Student Classroom Award-KSU

1. Dr. Helene C. Maire (PhD, 2008)
: Assist. Prof., Univ. South Caroline, Union.
"Characterization of cylindrical nano-domains in thin films of polystyrene-poly(methyl methacrylate) diblock copolymer studied via atomic force microscopy"

Undergraduate Students

18. Erin Frenk (Feb. 2023-)
    2024 Science Undergraduate Laboratory Internship (SULI) at Argonne National Lab (summer)
    2023 Undergraduate Classroom Award (Freshman)
17. Ryan Meany (2022, REU, St. Olaf College)
16. James Unzaga (2021, REU, Montana State Univ., Billings)
15. Samantha Jenkins (2020-2023, KSU Chem. undergrad): CVR Energy
    2023 Undergraduate Research Award
    2021 Award for Undergraduate Research in the College of Arts & Sciences (Fall)
14. Mikaela Moore (2018-2020)
    2020 PLU Undergraduate Research Award
13. Alex Peterson (2017-2018)
12. Jared Hague (2017-2018)
    2017 Undergraduate Research Award in the College of Arts & Sciences (Fall)
11. Roberto Espinoza (2016, REU, California State University Northridge)
10. Trevor Elwell-Cuddy (2014-16)
9. Christian Cox (2012-14)
8. Freya Bunga (2012)
7. Jason Finley (2010-12)
6. Ruben Diaz (2009, SUROP, Metropolitan University, PR)
5. Evgeniy Shishkin (2008-10; Developing Scholar)
4. Khanh Hoa Tran Ba (2008-09; exchange student from University of Giessen, Germany)
3. Sarah Forman (2005-07)
2. Deletria Battle (2005, from Alabama A&M Univ., SUROP)
1. Gregory Dible (2005)

Postdocs and Visiting Scientists

9. Dr. Saurav Kayal (2024-)
8. Dr. Akash Nathani (2021-)
7. Dr. Lianjie Xue (2019-2022; with Dr. Higgins): Assist. Prof. at Liberty Univ.
6. Dr. Sheela Thapa (2020): In Lincoln, NE
5. Dr. Jay N. Sharma (2019-2020): In India
4. Dr. Rajib Pramanik (2011-13; with Prof. Higgins): Postdoc at LANL
3. Dr. Yongxin Li (2007-08): Professor, Anhui Normal Univ., China
2. Dr. Iwona Szymanska (2006-07): Assist. Prof. at Polish Acad. Sci. Olsztyn
    2006-07 Kosciuszko Foundation Fellowship
1. Dr. Ahmad A. Audi (2006): Instructor, College of Lake County

Courses Taught at KSU

CHM371 Chemical Analysis	F04, S06, F08,
CHM566 Instrumental Method of Analysis	F10, 12, 14-20, 22-23,
CHM596 Physical Methods Lab	S05, 07-21, 23-24,
CHM939B Advanced Analytical Chemistry	F14, 15, 17–20, 22-23,
CHM939 Polymer Synthesis & Characterization	Summer 19
CHM940 Chemical Microscopy	F05, 07, 09
CHM944 Electroanalytical Chemistry	F06, 11, 13
CHM901 Analytical Group Seminar	F05, S07, F08, F10, F12, F14, F16, F18, S20, S21, F22, S24,

Departmental Committees

Departmental Scribe	2004-2005
Graduate Admissions and Recruiting Committee	2004-2022
Chair	2022-present
Graduate Program Committee	2016-2021, 2022-present
Seminar Coordinator	2016-2021, 2022-present
Research Restructuring Committee	2022-present
Infrastructure Committee (Instrumentation)	2022-present
Safety Committee	2022-2023
Faculty Search Committee	2006, 2016
Promotion Committee	2010, 2011, 2017, 2018

University/College Committees

Assistant Dean Search Committee (A&S, KSU)	2012
Graduate Council (Graduate School, KSU)	2018-2021
Committee on Planning	2018-2021
2021-22 Election Committee	2020-2021
CGS/ProQuest Distinguished Dissertation Award Committee	2020
Ervin W. Segebrecht Honorarium Award Selection Committee	2020
Committee Reviewing GTA Spending (A&S, KSU)	2023-present