Masashi Kaneda

Department of Chemical & Environmental Engineering, Yale University
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Education

Ph.D. **Yale University**, New Haven, CT **2020 – Present**
Department of Chemical & Environmental Engineering
Co-advisors: Professor Menachem Elimelech and Professor Mingjiang Zhong

M.S. **Yale University**, New Haven, CT **2020 – 2021**
Department of Chemical & Environmental Engineering

M.S. **Hokkaido University**, Sapporo, Japan **2017 – 2020**
Department of Environmental Engineering
Advisor: Professor Katsuki Kimura

B.S. **Hokkaido University**, Sapporo, Japan, **2013 – 2017**
Department of Socio-Environmental Engineering

Research Experience

Graduate Research Fellow **Aug. 2020 – Present**
Yale University, New Haven, CT, Advisors: Prof. Menachem Elimelech and Prof. Mingjiang Zhong

- Engineering polymeric silica inhibitors for high recovery brine concentrators
- Advanced polymerization methods to produce polymers with various architectures and functional groups
- Experimental and computational analysis to dissect mechanisms of silicic acid polymerization

Visiting Research Assistant **Oct. 2017 – Nov. 2018**
Yale University, New Haven, CT, Advisor: Prof. Menachem Elimelech

- Membrane surface modification with graphene oxide nanosheets
- Anti-bacterial activity analysis of modified membranes

Graduate Research Fellow **Apr. 2017 – Mar. 2020**
Hokkaido University, Sapporo, Japan, Advisor: Professor Katsuki Kimura

- Operated bench-scale MBRs in local wastewater treatment plant
- Investigated the optimized chemically assisted maintenance cleaning to maintain permeability and analyzed membrane fouling

Visiting Research Assistant **Feb. 2016 – Mar. 2016**
Okinawa Institute of Science and Technology Graduate University (OIST), Kunigami-gun, Japan, Advisor: Professor Amy Shen

- Investigated the surface and interfacial tension in various liquids
- Measured and analyzed the interfacial tension between liquid crystal and glycerol with temperature by using optical tensiometry and micro fluidics tensiometry

Publications

1. Lu, X., Gabinet, UR., Ritt, C., Feng, X., Deshmukh, A., Kawabata, K., **Kaneda, M.,** Hashmi, SM., Osuji, C., Elimelech, M. "Relating Selectivity and Separation Performance of Lamellar Two-Dimensional Molybdenum Disulfide (MoS2) Membranes to Nanosheet Stacking Behavior" *Environmental Science & Technology,* 2020, 54, 9640-9651.
2. Ninomiya, Y., Kimura, K., Sato, T., Kakuda, T., **Kaneda, M.,** Hafuka, A., Tsuchiya, T. "High-flux operation of MBRs with ceramic flat-sheet membranes made possible by intensive membrane cleaning: Tests with real domestic wastewater under low-temperature conditions" *Water Research,* 2020, 181, 115881.
3. Cheng, W., Lu, X., **Kaneda, M.,** Zhang, X., Bernstein, R., Ma, J., Elimelech, M. "Graphene Oxide Functionalized Membranes: The Importance of Nanosheet Surface Exposure for Biofouling Resistance" *Environmental Science & Technology*, 2020, 54, 517-526
4. **Kaneda, M.**, Lu, X., Cheng, W., Zhou, X., Bernstein, R., Zhang, W., Kimura, K., Elimelech, M. "Photografting Graphene Oxide to Inert Membrane Materials to Impart Antibacterial Activity" *Environmental Science & Technology Letters*, 2019, 6, 141-147.

Awards and Honors

- Funai Overseas Scholarship by The Funai Foundation for Information Technology **2020 – Present**
- Rotary International Global Grant Scholarship **2020 – Present**
- Japan Student Services Organization Scholarship **2019 – 2020**
  (Repayment was exceptionally exempted due to academic excellence)
- Tonen General Oil Research and Development **2019 – 2020**
  Encouragement & Scholarship Foundation
- Japan Public-Private Partnership Student Study Abroad Program Scholarship **2017 – 2018**
  (TOBITATE! Young Ambassador Program)

Presentations

1. **Kaneda, M.,** Chen, Y., Zhang, X., Liang, R., Porter, C., Zhong, M., Elimelech, M. "Inhibition of Silicic Acid Polymerization for Silica Scale Mitigation: Structure-Property-Performance Relationships of Polymeric Antiscalants" *Gordon Research Seminar and Conference, Membrane: Materials and Processes,* New London, NH. Poster presentation. Aug. 2022 (Accepted)
2. **Kaneda, M.,** Zhang, X., Liang, R., Porter, C., Zhong, M., Elimelech, M. "Stabilization of Silicic Acid for Silica Scale Mitigation: Roles of Polymeric Antiscalant Functional Groups and Molecular Structures" *American Chemical Society Meeting*, Atlanta, GA. Oral presentation. Aug. 2021
3. **Kaneda, M.**, Kimura, K., Lu, X., Elimelech, M. "Photografting Graphene Oxide to Inert Membrane Materials to Impart Antibacterial Activity" *Japan Society on Water Environment*, Kohu, Japan. Oral and poster presentations. Mar. 2019
4. **Kaneda, M.**, Lu, X., Elimelech, M. "Photo-Grafting Graphene Oxide to Inert Membrane Materials to Enhance Antibacterial Activity" *Northeast Graduate Student Water Symposium*, Amherst, MA. Oral presentation. Aug. 2018

5. **Kaneda, M.,** Uchida, H., Kimura, K. "Investigation of Effective Membrane Cleaning in Submerged MBRs Equipped with Ceramic Membranes" *Japan Society on Water Environment*, Kumamoto, Japan. Oral presentation. Mar. 2017

Leadership and Services

Japanese Association of Students and Scholars at Yale, President **Sep. 2020 – Present**

- Organize regular gatherings for all affiliated Japanese including undergrads, graduate and professional school students, postdocs, and their families
- Obtain funding from graduate student assemblies and university offices

Japanese Graduate Student Association in the U.S., Branch manager **Aug. 2020 – Present**

- Organize online seminar every summer for undergraduate students at Hokkaido University to promote graduate studies overseas
- Select speakers and coordinate with the university office and the association

Habitat for Humanity at Hokkaido Branch, Vice president **Jan. 2015 – Nov. 2015**

- Held a weekly meeting to organize the volunteer program
- Selected and directed 14 students to Fiji Island for helping people in need and build houses with local partners.

Habitat for Humanity Japan, Project manager, Republic of Indonesia **Aug. 2014**

- Participated in a volunteer program to build houses for local people in Kota Medan, Indonesia
- Spent 10 days and observed their life and culture