

Qinyi Fu

Office 413, Chemistry Department

Mobile: +1 (516) 784-7916

Stony Brook University

Email: Qinyi.Fu@stonybrook.edu

100 Nicolls Road, Stony Brook, NY 11794

Website: fuqinyi.com

ADVISORS

Prof. Benjamin Hsiao (Distinguished Professor of Chemistry and Director of Center for Integrated Electric Energy Systems)

Dr. Benjamin Ocko (Senior Scientist at National Synchrotron Light Source II, Brookhaven National Lab)

RESEARCH EXPERIENCE

Chemistry Department, Stony Brook University

Stony Brook, NY

Graduate research assistant

2015-present

- Researched the inter-molecular structure of ultra-thin polyamide (PA) selective layers of desalination membranes through grazing incidence wide-angle X-ray scattering (GIWAXS) and followed the structural evolution in PA layers from dry states to wet states in in-situ measurements to reveal the water diffusion, swelling behavior and filtration kinetics within crosslinked PA networks.
- Assembled a high-pressure crossflow desalination system and developed protocols for the measurement to investigate the structural-performance relationship of the PA layers.
- Proposed a novel 2D fitting model for scattering profiles with orientation distribution function (ODF) to explore the surface-induced molecular orientation of PA layers.
- Employed X-ray reflectivity (XRR) to characterize the thickness, interfacial morphology and dimensional changes (swelling) under humidity of the PA layers.

Department of Precision Instrument, Tsinghua University

Beijing, China

Undergraduate student researcher

2011-2015

- Developed an algorithm for compressive sensing using a single-pixel detector

TEACHING EXPERIENCE

Teaching Assistant, Stony Brook University

General Chemistry Laboratory, Solution Chemistry Laboratory, General Chemistry Lecture

PROFESSIONAL PROFILE

- **3 articles (3 first author)**, including ACS Macro Letter (1), Synchrotron Radiation News (1) and Nature Communication (1).
- **1 patent.**
- **International conferences**, including 3 contributed talks and 2 posters.

AREAS OF EXPERTISE

X-ray scattering for soft-matter; In situ x-ray scattering for the structural evolution of polymer thin films under humidity; X-ray reflectivity for polymer thin films; Interfacial polymerization to synthesize polymer thin films; Microscopic and electronic properties of the polymer thin films; Installation and operation of lab-scale desalination systems.

PUBLICATION LIST

IN PREPARATION

1. **Qinyi Fu**, Nisha Verma, Benjamin S. Hsiao and Benjamin M. Ocko, “Water adsorption in aromatic reverse osmosis polyamide barrier layers observed by grazing incidence wide-angle X-ray scattering (GIWAXS)”.

PUBLISHED

2. **Qinyi Fu**, Nisha Verma, Benjamin S. Hsiao, Francisco Medellin-Rodriguez, Peter A. Beaucage, Chris M. Stafford and Benjamin M. Ocko, “X-ray Scattering Studies of Reverse Osmosis Materials”, Synchrotron Radiation News, 2020.
3. **Qinyi Fu**, Nisha Verma, Hongyang Ma, Francisco J. Medellin-Rodriguez, Ruipeng Li, Masafumi Fukuto, Christopher M. Stafford, Benjamin S. Hsiao, Benjamin M. Ocko, "Molecular Structure of Aromatic Reverse Osmosis Polyamide Barrier Layers." *ACS Macro Letters* 8.4 (2019): 352-356.
4. **Qinyi Fu**, Benjamin L. Martin, David Q. Matus, and Liang Gao, "Imaging multicellular specimens with real-time optimized tiling light-sheet selective plane illumination microscopy." *Nature communications* 7.1 (2016): 1-10.

CONFERENCES

1. **Qinyi Fu**, Nisha Verma, Benjamin M. Ocko, Benjamin S. Hsiao, “Water adsorption in aromatic reverse osmosis polyamide barrier layers observed by grazing incidence wide-angle X-ray scattering”, ACS Fall 2020 VIRTUAL Meeting & Expo, August 17-20, 2020.
2. **Qinyi Fu**, Nisha Verma, Hongyang Ma, Francisco J. Medellin-Rodriguez, Ruipeng Li, Masafumi Fukuto, Christopher M. Stafford, Benjamin S. Hsiao, Benjamin M. Ocko, “Molecular structure of

aromatic reverse osmosis polyamide barrier layers prepared at the oil/water interface”, 257th ACS National Meeting & Exposition, Orlando FL, Mar 31 - Apr 04, 2019.

3. Benjamin M. Ocko, **Qinyi Fu**, Nisha Verma, Ruipeng Li, Masafumi Fukuto, Christopher M. Stafford, Benjamin S. Hsiao, “Molecular structure of commercial reverse osmosis polyamide barrier layers”, 257th ACS National Meeting & Exposition, Orlando FL, Mar 31 - Apr 04, 2019.

PATENT

- **Chinese Patent: CN102621997B**, Yuhao Gao, Shifeng Wang, Qinyi Fu, Tian Ding, “Shadow puppet control robot”, 2012.