

FUHAR DIXIT

NSERC Vanier-Banting Scholar

Phone: 650-590-4968

E-mail: fuhar@berkeley.eduLinkedIn: <https://www.linkedin.com/in/fuhardixit>

RESEARCH INTERESTS

I am an engineer interested in developing cost-effective, globally applicable water treatment technologies. As a postdoctoral scholar at The University of California, Berkeley (UC Berkeley), I am investigating the applicability of the total oxidizable precursor (TOP) assay for the detection, quantification, and remediation of per- and polyfluoroalkyl substances (PFAS) in the environment. I aim to delve deeper into my interests as an academician, utilizing and developing novel tools and techniques to protect and sustain agriculture and natural resources throughout the world. My intent is to continue to conduct translatable research that fosters the creative and resourceful application of scientific fundamentals to address far-reaching environmental obstacles, at scales from the sub-atomic to the global. With a core mindset, focused on collaboration, innovation, and mentorship, I feel prepared to promote cross-disciplinary scientific progress for the benefit of communities as well as the training of the next generation of scientists and entrepreneurs.

Topics: Environmental chemistry, water treatment and reuse, perfluoroalkyl substances (PFAS) and nanomaterials.

EDUCATION

Ph.D. in Chemical and Biological Engineering | University of British Columbia (UBC) **2017 - 2022**

Advisor: Dr. Madjid Mohseni

Committee: Drs. Benoit Barbeau, Pierre Berube and Karl Linden

Thesis: "Perfluorinated compounds: Removal from recycled and impaired waters by ion exchange process."

M.A.Sc. in Chemical and Biological Engineering | University of British Columbia **2017**

Advisor: Dr. Madjid Mohseni

Thesis: "Anion exchange resins for the removal of microcystins from surface waters."

B.Tech. (Honors) in Ceramic Engineering | Indian Institute of Technology, Banaras Hindu University **2014**

Advisor: Dr. Om Parkash

Thesis: "Dye adsorption from untreated textile effluents using sawdust encapsulated polymeric beads."

RESEARCH EXPERIENCE

Postdoctoral Scholar | Drs. Lisa Alvarez-Cohen and David Sedlak Laboratory **2022 - Present**

Department Civil and Environmental Engineering, UC Berkeley

Research Area: Detection, sorption, biotransformation, and treatment of PFAS in contaminated source zones.

Banting Postdoctoral Fellow | Dr. William Mitch Laboratory **2022 - Present**

Department Civil and Environmental Engineering, Stanford University

Research Area: Identification, indexation, and elimination of disinfection by-products during water reuse.

Graduate Research Assistant | Dr. Madjid Mohseni Lab **2014 - 2022**

Department of Chemical and Biological Engineering, UBC

Research Area: Removal of PFAS and algal toxins from drinking and reuse waters.

Junior Scientist | Drs. Satoshi Takizawa and Kumiko Oguma Lab **2014**

Department of Urban Engineering, University of Tokyo, Japan

Research Area: UV-based advanced oxidation processes (AOPs) for drinking water treatment and disinfection.

CONTRIBUTIONS TO THE FIELD

Part I: Selected Peer Reviewed Journal Articles

- Esfahani, E.B., **Dixit, F.**, Zeidabadi, F. A., Johnson, M. R., Mayilswamy, N., Kandasubramanian, B., Mohseni, M. 2023. Ion exchange and advanced oxidation/reduction processes for per- and polyfluoroalkyl substances treatment: a mini-review. Current Opinion in Chemical Engineering. <https://doi.org/10.1016/j.coche.2023.100953>.
- Antell, E., Yi, S., Olivares, C., Ruyle, B., Kim, J., Tsou, K., **Dixit, F.**, Alvarez-Cohen, L., Sedlak, D. 2023. The total oxidizable precursor (TOP) assay as a forensic tool for per- and polyfluoroalkyl substances (PFAS) source apportionment. ACS ES&T Water. <https://doi.org/10.1021/acsestwater.3c00106>.
- Zimmermann, K., Chaudhuri, S., Antell, E., Schwartz, S., **Dixit, F.** 2023. Whole-community water management: Inspiration for water utilities from around the globe. Molecular Frontiers Journal. <https://doi.org/10.1142/S2529732523400023>.
- Page, S., Brandhuber, P., **Dixit, F.**, Fennel, B., Goodwill, J., Vlad, S. 2022. Extreme events increase operational and planning complexity. Journal AWWA. <https://doi.org/10.1002/awwa.1925>.
- **Dixit, F.**, Munoz, G., Mirzaei, M., Sauve, S., Barbeau, B., Kandasubramanian, B., Liu, J., Mohseni, M., 2022. Removal of zwitterionic PFAS by MXenes: Comparisons with anionic, nonionic and PFAS-specific resins. Environmental Science and Technology. <https://doi.org/10.1021/acs.est.1c03780>.
- **Dixit, F.**, Zimmermann, K., Dutta, R., Barbeau, B., Kandasubramanian, B., Mohseni, M., 2022. Application of MXenes for air purification and gas storage: A review. Renewable and Sustainable Energy Reviews. <https://doi.org/10.1016/j.rser.2022.112527>.
- **Dixit, F.**, Zimmermann, K., Dutta, R., Niranjana, J., Barbeau, B., Kandasubramanian, B. Mohseni, M., 2022. Application of MXenes for water treatment and energy-efficient desalination: A review. Journal of Hazardous Materials. <https://doi.org/10.1016/j.jhazmat.2021.127050>.
- Nighojkar, A., Zimmermann, K., Ateia, M., Barbeau, B., Mohseni, M., Krishnamurthy, S., **Dixit, F.**, Kandasubramanian, B. 2022. Application of neural network in metal adsorption using biomaterials (BMs): a review. Environmental Science: Advances. <https://doi.org/10.1039/D2VA00200K>.
- **Dixit, F.**, Barbeau, B., Lompe, K., Kheyrandish, A., Mohseni, M., 2021. Performance of the HSDM model to predict competitive uptake of PFAS, NOM and inorganic anions by suspended ion exchange processes. Environmental Science: Water Research and Technology. <https://doi.org/10.1039/D1EW00145K>.
Recognition: Cover Article of July 2021 Issue of Environmental Science: Water Research and Technology.
- **Dixit, F.**, Dutta, R., Barbeau, B., Berube, P., Mohseni, M., 2021. PFAS removal by ion exchange resins: A review. Chemosphere. <https://doi.org/10.1016/j.chemosphere.2021.129777>.
- **Dixit, F.**, Chintalapati, P., Barbeau, B., Han, M., Whittaker, T.R., Mohseni, M., 2021. Ion Exchange and Vacuum UV: A combined approach for removing organic matter and microcystins from natural waters. Chemical Engineering Journal. <https://doi.org/10.1016/j.cej.2021.128855>.
- **Dixit, F.**, Barbeau, B., Mostafavi, S.G., Mohseni, M., 2020. PFAS and DOM removal using an organic scavenger and PFAS-specific resin: Trade-off between regeneration and faster kinetics. Science of the Total Environment. 142107. <https://doi.org/10.1016/j.scitotenv.2020.142107>.
- **Dixit, F.**, Barbeau, B., Mostafavi, S.G., Mohseni, M., 2020. Removal of legacy PFAS and other fluorotelomers: Optimized regeneration strategies in DOM-rich waters. Water Research (Special Issue: NOM 2019). 183, 116098. <https://doi.org/10.1016/j.watres.2020.116098>.
Recognition: Metawater Award for Excellent Research at IWA-NOM Conference, Tokyo 2019.
- **Dixit, F.**, Barbeau, B., Mostafavi, S.G., Mohseni, M., 2020. Efficient removal of GenX (HFPO-DA) and other perfluorinated ether acids from drinking and recycled waters using anion exchange resins. Journal of Hazardous Materials. 384, 121261. <https://doi.org/10.1016/j.jhazmat.2019.121261>.
- **Dixit, F.**, Barbeau, B., Mostafavi, S.G., Mohseni, M., 2019. PFOA and PFOS removal by ion exchange for water reuse and drinking applications: role of organic matter characteristics. Environmental Science: Water Research and Technology. 5, 1782–1795. <https://doi.org/10.1039/C9EW00409B>.

- **Dixit, F.,** Barbeau, B., Mohseni, M., 2019. Microcystin-LR removal by ion exchange: Investigating multicomponent interactions in natural waters. Environmental Pollution. 253, 790–799. <https://doi.org/10.1016/j.envpol.2019.07.062>.
Recognition: IC-IMPACTS Research Paper Award.
- **Dixit, F.,** Barbeau, B., Mohseni, M., 2019. Removal of Microcystin-LR from spiked natural and synthetic waters by anion exchange. Science of the Total Environment. 655, 571-580. <https://doi.org/10.1016/j.scitotenv.2018.11.117>.
- **Dixit, F.,** Barbeau, B., Mohseni, M., 2018. Characteristics of competitive uptake between Microcystin-LR and natural organic matter (NOM) fractions using strongly basic anion exchange resins. Water Research. 139, 74–82. <https://doi.org/10.1016/j.watres.2018.03.074>
- **Dixit, F.,** Barbeau, B., Mohseni, M., 2018. Simultaneous uptake of NOM and Microcystin-LR by anion exchange resins: Effect of inorganic ions and resin regeneration. Chemosphere. 192, 113-121. <https://doi.org/10.1016/j.chemosphere.2017.10.135>.
- Sahetya, T.J., **Dixit, F.,** Balasubramanian, K., 2015. Waste citrus fruit peels for removal of Hg(II) ions. Desalination and Water Treatment. 53. 1404-1416. <https://doi.org/10.1080/19443994.2013.852483>.

Part II: Manuscripts in Preparation (Expected to be communicated by December 2023)

- **Dixit, F.,** Antell, E., Faber, K., Zhang, C., Pannu, M., Plumlee, M., Van Bruen, J., Pomerantz, W., Arnold, W., Higgins, C., Peaslee, G., Alvarez-Cohen, L., Ateia, M., Sedlak, D., Closing the Analytical Gap: An Inter-Method Evaluation of Total Organofluorine Quantification Techniques in AFFF-Impacted Water. In preparation. Environmental Science and Technology Letters (target).
- Cook, E., Olivares, C., Sun, Y., **Dixit, F.,** Ocasio, D., Yi, S., Sedlak, D., Alvarez-Cohen, L., Practical Considerations for the Optimization of In Situ Mineralization of Perfluorocarboxylic Acids and Polyfluoroalkyl Substances using Persulfate Oxidation. In preparation. ACS ES&T Water (target).

Part III: Selected International Peer Reviewed Conference Contributions

- * **Dixit, F.,** Mitch, W. 2023. Impact of PFAS adsorbents on disinfection by-products formation during water treatment and reuse. ACS Fall 2023, San Francisco, CA (Oral Presentation). *Presenting author.
- * Tsou, K., Sedlak, D., Alvarez-Cohen, L., Duan, Y., Parks, A., **Dixit, F.** 2023. Understanding the effects of salinity and solid types on the sorption behavior of per- and polyfluoroalkyl substances. ACS Fall 2023, San Francisco, CA (Oral Presentation).
- * Antell, E., Chaudhuri, S., Duan, Y., **Dixit, F.,** Yi, S., Olivares, C., Alvarez-Cohen, L., Sedlak, D. 2023. Anion exchange resins employed for water treatment fail to remove zwitterionic PFAS from drinking water sources. ACS Fall 2023, San Francisco, CA (Oral Presentation).
- * **Dixit, F.,** Antell, E., Olivares, C., Tsou, K., Alvarez-Cohen, L., Sedlak, D. Forensics Panel. Strategic Environmental Research and Development Program (SERDP) Meeting, Portland, OR (Oral Presentation).
- * **Dixit, F.,** Steffens, S., Cook, E., Olivares, C., Sedlak, D., Alvarez-Cohen, L. 2022. Differentiating transformation and removal of per- and polyfluoroalkyl substances in a laccase-mediator system (ER19-1410). SERDP Meeting, Arlington, VA (Poster presentation).
- * **Dixit, F.,** Tsou, K., Antell, E., Olivares, C., Olivares, C., Sedlak, D., Alvarez-Cohen, L. 2022. A simple and robust forensic technique for differentiating PFAS associated with AFFF from other PFAS sources ER-1330. SERDP Meeting, Arlington, VA (Poster presentation).
- * **Dixit, F.,** Cook, E., Steffens, S., Olivares, C., Sedlak, D., Alvarez-Cohen, L. 2022. In situ remediation of aqueous film forming foams and common co-contaminants with the dual approach of chemical oxidation and bioremediation (ER-2715). SERDP Meeting, Arlington, VA (Poster presentation).
- * **Dixit, F.,** Barbeau, B., Mohseni, M., 2020. PFAS-Specific Resins vs Conventional Organic Scavenger Resins: Tradeoffs Between NOM Removal, Regeneration and Faster Kinetics. American Water Works Association's Virtual Summit on Water Quality and Infrastructure (Oral Presentation).

- * **Dixit, F.**, Barbeau, B., Mohseni, M., 2019. Effectiveness of ion exchange process to remove GenX and other persistent per-fluorinated compounds in water reuse and drinking applications. American Water Works Association's Water Quality and Technology Conference (WQTC), Dallas, TX (Oral Presentation).
- **Dixit, F.**, Barbeau, B., *Mohseni, M., 2019. Optimized regeneration strategies for ion exchange resins during PFAS removal from natural waters. WQTC, Dallas, TX (Oral Presentation).
- ***Dixit, F.**, Barbeau, B., Mohseni, M., 2019. Impact of natural organic matter characteristics on performance of ion exchange resins in natural waters. International Water Association's Specialty Conference on Natural Organic Matter in Water, Tokyo, Japan (Oral Presentation).
Recognition: Awarded the best presentation award.
- ***Dixit, F.**, Barbeau, B., Mohseni, M., 2018. Anion exchange resins for the removal of PFOA and PFOS from recycled waters. WQTC, Toronto, ON (Poster Presentation).
- ***Dixit, F.**, Mohseni, M., 2018. Potable Reuse of Wastewater: Low-cost chemical free technologies. Water and Environment Student Talks (WEST) Conference, Vancouver, Canada (Oral Presentation).
- * **Dixit, F.**, Mohseni, M., 2016. Anion exchange resins for the removal of cyanobacterial toxins from surface water. WQTC, Indianapolis, IN (Oral Presentation).
- * **Dixit, F.**, Mohseni, M., 2016. Removal of algal toxins from surface water by anion exchange resins. 17th Canadian National Drinking Water Conference, Ottawa, ON (Oral Presentation).
- ***Dixit, F.**, *Chintalapati, P., Mohseni, M., 2016. Algal Toxins- What are the viable treatment options for small systems. British Columbia Water and Waste Association's Annual Conference and Tradeshow (Oral Presentation).
- ***Dixit, F.**, McBeath, S., Serrano, A., Bhartia, S., 2016. Drinking water challenges and solutions for First Nations Communities in Canada. WASH Symposium - University of Colorado, Boulder (Oral Presentation).

Part IV: Reports

- Alvarez-Cohen, L., Sedlak, D., **Dixit, F.**, Steffens, S. 2022. In Situ Remediation of Aqueous Film Forming Foams and Common Co-Contaminants with the Dual Approach of Chemical Oxidation and Bioremediation. SERDP Project ER-2715. Available online: <https://apps.dtic.mil/sti/citations/trecms/AD1202909>.
- Alvarez-Cohen, L., **Dixit, F.**, Steffens, S. Develop a treatment train for in situ mineralization of perfluorooctanesulfonic acid using heat activated persulfate oxidation (HAPO). SERDP Project ER-1410. Submitted (In review).

Part V: Manuscript Reviews

Reviewer Journal of American Water Works Association	2019 - Present
Reviewer Water Research	2019 - Present
Reviewer American Chemical Society's Environmental Science and Technology Journal	2020 - Present
Reviewer Chemosphere	2020 - Present
Reviewer Current Opinion in Chemical Engineering	2023 - Present
Reviewer Journal of Environmental Chemical Engineering	2023 - Present
Reviewer Journal of Hazardous Materials	2023 - Present
Reviewer Science of the Total Environment	2023 - Present

PATENT

Dixit, F., Barbeau, B., Mohseni, M (2021). Methods of removing environmental contaminants.
Status: Commercialized with strong patentability report (Launched a startup company and secured funding).

HONORS AND AWARDS

NSERC and Banting Postdoctoral Fellowship (CAD 90,000) National Sciences and Engineering Research Council of Canada (2022) Stanford University / UC Berkeley.	2022
Banting Postdoctoral Fellowship (CAD 140,000) National Sciences and Engineering Research Council of Canada (2022) Stanford University (Offered/Declined).	2022
Finalist – Schmidt Science Fellow (USD 100,000) Schmidt Science Fellows UBC (2021).	2021
Research Paper Award IC-IMPACTS.	2021
Michael Smith Foreign Study Supplement (CAD 6,000) National Sciences and Engineering Research Council of Canada Stanford University.	2020
Winner: 3 Minute Thesis Presentation (CAD 500) IC-IMPACTS Annual Research Conference.	2020
President’s Academic Excellence Initiative Ph.D. Award (CAD 825) UBC.	2020
Best Presenter Award International Water Association’s Specialty Conference on Natural Organic Matter in Water, Tokyo.	2019
Vanier Scholarship (CAD 150,000) National Sciences and Engineering Research Council of Canada UBC.	2019
Alexander Graham Bell Canada Graduate Scholarship – Doctoral (CAD 70,000) National Sciences and Engineering Research Council of Canada (Offered/Declined).	2019
The Power of Youth Leadership Award Drishti Media Group.	2018
Graduate Student Initiative Fund (CAD 5,000) UBC.	2018
UBC Four Year Doctoral Fellowship (CAD 18,000 annually, plus tuition for four years) UBC.	2018
International Waters Network Graduate Fellowship (CAD 5,000) The International Waters Network UBC.	2017
Graduate Student Scholarship (USD 300) WASH Symposium University of Colorado, Boulder.	2016
Faculty of Applied Science Graduate Award (CAD 15,000) UBC	2014
Mitacs Globalink Graduate Fellowship (CAD 10,000) Mitacs Inc. University of Western Ontario	2014
Honda Young Engineer and Scientist (YES) and YES Plus Award (USD 10,000) Honda Foundation, Japan (Awarded to top 14 students across all IIT’s).	2012 - 2013

GRANTS

Contributor United States Bureau of Reclamation (USD 1,100,000) 2023	In review
<i>Title: “Destruction of Per- and Polyfluoroalkyl Substances (PFAS) in Ion Exchange and Membrane Concentrates Generated During Water Treatment and Reuse.”</i>	
Contributor California Department of Water Resources (USD 1,000,000) 2023	In review
<i>Title: “Pilot Evaluation of a Novel Treatment Approach Utilizing Sorption and Destruction of Contaminants of Emerging Concern During Potable Reuse.”</i>	
Contributor Murdock Trust – Commercialization Initiation grant (USD 260,000) 2023	Offered/Accepted
<i>Title: “Regenerable adsorbents for PFAS removal.”</i>	
Contributor SERDP (USD 1,500,000) 2023	Offered/Accepted
<i>Title: “Assessment of Physical, Chemical, and Biological Factors Controlling Biotransformation of Cationic and Zwitterionic Precursors in PFAS Source Zones.”</i>	
Contributor NSERC Alliance Mission Grants (CAD 895,000) 2022	Offered/Accepted
<i>Title: “Regenerative adsorbents: Identification, synthesis and deployment of PFAS capturing techniques in AFFF impacted Canadian water supplies.”</i>	
Primary Applicant Banting Postdoctoral Fellowship (CAD 140,000)	Offered/Accepted
<i>Title: “Expanding the water reuse arsenal: Scalable regenerative water treatment systems.”</i>	
Primary Applicant Vanier Canada Graduate Scholarships (CAD 150,000)	Offered/Accepted
<i>Title: “Preparing for the future of water: increasing resilience to drinking water safety through optimized water reuse strategies.”</i>	
Primary Applicant NSERC Alexander Graham Bell Doctoral Fellowship (CAD 70,000)	Offered/Declined
<i>Title: “Wastewater reuse: A new strategy for managing future water demands.”</i>	
Contributor IC-IMPACTS Innovative Technology Demonstration Project (CAD 55,000)	Offered/Accepted
<i>Title: “Sensors for people: three drops.”</i>	
Primary Applicant International Waters Network Graduate Fellowship (CAD 5,000)	Offered/Accepted
<i>Title: “Achieving water resilience with collaborative water quality monitoring tools.”</i>	

RESEARCH COLLABORATIONS

Academic Collaborations

Stanford University, University of Colorado Boulder, Colorado School of Mines, University of Minnesota, University of Minnesota, University of Notre Dame, Oregon State University, McGill University, Montréal, Université de Montréal, Université Laval, University of British Columbia, University of Alberta, Western University, University of Tokyo, Indian Institute of Technology (IIT) Bombay, IIT Banaras Hindu University (BHU) and DIAT Pune.

Government Collaborations

USEPA, California State Water Resources Control Board, SERDP and ESTCP, NAVFAC and Transport Canada.

Industry Collaborations

Jacobs Engineering Group, Geosyntec Consulting, Arcadis, Purolite, Veolia, Trojan Technologies, NOVA Chemicals, DAS-Environmental Experts (DAS-EE, Germany).

Collaborations with Water Utilities

Orange County Water District, San Juan Island (WA), Loudon Water (VA), Silicon Valley Clean Water (SVCW), Vancouver Convention Centre, Metro Vancouver, Greater Nanaimo Pollution Control Centre and Tl'azt'en First Nation.

Collaborations with Water Networks

RES'EAU CMI (UBC), IC-IMPACTS (UBC), ReNUWIt / NAWI (UC Berkeley) and CentrEau (Université Laval).

TEACHING EXPERIENCE

Instructor Department of Chemical and Biological Engineering, UBC (Position Offered) <i>Vancouver Summer Program: Environmental Chemistry</i>	2024
Mentor Girls in Engineering, UC Berkeley Introduction to Environmental Engineering (Instructor: Anne Mayoral, 50 High School Students).	2023
Graduate Teaching Assistant Department of Chemical and Biological Engineering, UBC <i>CHBE 453: Chemical and Biological Engineering Process and Product Design</i> (Instructors: Professors Jonathan Verrett, Susan Baldwin, Jim Lim, Dusko Posarac and Sergio Berretta, 110 Undergraduate Students).	2021
Instructor Department of Civil Engineering, UBC <i>CIVIL 562: Environmental Data Collection and Analysis</i> (3 Credits, 13 Graduate Students).	2020
Instructor Department of Chemical and Biological Engineering, UBC <i>Vancouver Summer Program: Introduction to Chemical Engineering, States of Matter, Heat and Mass Transfer and Chemical Kinetics</i> (40 Undergraduate Students).	2019
Graduate Teaching Assistant Department of Chemical and Biological Engineering, UBC <i>CHBE 373: Water Pollution Control</i> (Instructor: Professor Madjid Mohseni, 150-180 Undergraduate Students).	2014-2018
Graduate Teaching Assistant Department of Chemical and Biological Engineering, UBC <i>CHBE 366: Chemical Engineering Laboratory</i> (Instructor: Professor Elod Gyenge, 60 Undergraduate Students).	2017

LECTURES

Invited Speaker PFAS Analytical Techniques, University of Chemistry and Technology, Prague (TBD)	2024
Invited Speaker Chemistry of PFAS, Department of Agroforestry, University Laval, QC (50 students)	2020
Invited Speaker Wastewater Reuse, Imperial College London's Webinar Series (25 students)	2020
Lecturer Writing Effective Scholarship Grant Applications, UBC (10 students)	2019
Guest Lecturer CHBE 373 Water Pollution Control, UBC (170 students)	2018 - 2020
Invited Speaker Department of Biotechnology's Workshop on Ganga Rejuvenation, IIT (BHU) (60 students) <i>Title: Treatment Technologies for River Reclamation: Challenges and Opportunities in the Context of River Ganges.</i>	2018
Invited Panelist 10th Annual Canadian Water Summit, Vancouver (50 attendees) <i>Title: Readyng Canada's Future Workforce.</i>	2018
Invited Speaker IC-IMPACTS Annual General Meeting, Vancouver (100 attendees) <i>Title: The Role of Network Students.</i>	2017

TEACHING CERTIFICATIONS

Exploring and Expanding Equity, Diversity and Inclusion Work at University UBC	2020
Leading Synchronous and Asynchronous Online Discussions UBC	2020
Instructional Skills Workshop for Teaching Undergraduate and Graduate Students UBC	2017

MENTORSHIP AND CONSULTATION

Undergraduate Students

Shreya Chaudhuri **2022-2023**

Title: Nanomaterials for environmental remediation

Outcome: 2 peer reviewed articles

Current Position: B.Sc in Department of Environmental Sciences, UC Berkeley.

Shadan Ghavam Mostafavi **2018-2019**

Title: PFAS Removal from Recycled Waters using Ion Exchange Resins

Outcome: 4 peer reviewed articles

Current Position: Process Engineer at NORAM.

Thomas Riley Whittaker **2017-2018**

Title: Microcystin-LR Removal using Ion Exchange with UV-185 nm Oxidation

Outcome: 1 peer reviewed article

Current Position: Associate Process Specialist at Fluor Canada.

Graduate Students

Edmund Antel (UC Berkeley): Advised on examining the utility of the TOP Assay for predicting zwitterionic PFAS breakthrough from anion exchange resins.

Katerina Tsou (UC Berkeley): Advised on investigating the impact of soil characteristics on PFAS sorption.

Ehsan Banayan (UBC): Advised on developing PFAS detection method using HPLC-MS and on Arsenic, Iron and Manganese removal with MXenes.

Mahboobeh Mirzaei (UBC): Advised on PFAS detection method development for water matrices with high background salt concentration and on regeneration of ion exchange resins and MXenes.

Post-Doctoral Researchers

Anna-Ricarda Schittich and Hyun Yoon (UC Berkeley)

Advised on organofluorine analytical techniques and sorption and biotransformation of PFAS on solid matrices.

Industry

Airport Sites and Drinking Water Utilities (Multiple Anonymous Sites): Advised on identifying appropriate technologies for PFAS remediation in contaminated groundwaters (2022-2023).

DAS-EE, Germany: Initiated a collaboration between UBC and DAS-EE to co-develop technologies for degrading isopropyl alcohol from effluent wastewaters (2020).

OFV, India: Synthesized coagulation materials for recovering nitro-cellulose (NC) from industrial wastewaters (2017).

High School Students

Mentored four First Nations high school students under the Verna J. Kirkness Program on developing water filters.

Middle School Students

Lead activities on water quality and treatment as a part of 'Girls in engineering' program at UC Berkeley.

EVENT ADMINISTRATION

Primary Organizer American Chemical Society (ACS) - ENVR Webinar Series UC Berkeley Highly Qualified Personnel's (HQPs) Trained: In process	2023-Present
Co-Organizer IC-IMPACTS WESTalks: Multi-Institutional Webinar Series UBC, Vancouver. <i>See details here:</i> https://west-conference.ubc.ca/westtalks/ HQPs Trained: 700+	2020-2023
Primary Organizer International Water Think Tank Conference (3 Days) University Laval, QC, Canada. HQPs Trained: 30	2023
Primary Organizer IC-IMPACTS Student Led Commercialization Workshop (1 Day) Indian Institute of Management, Ahmedabad, G.J., India. HQPs Trained: 20	2019
Primary Organizer Workshop on Scientific Writing (2 Days) UBC, Vancouver. HQPs Trained: 25	2018
Co-organizer IC-IMPACTS: Conference on Innovations in Sustainable Water Resource Management (2 days) Punjab Technological University, Ludhiana, P.B., India. HQPs Trained: 50	2018
Co-Organizer IC-IMPACTS: Workshop on Ganga Rejuvenation (2 days) IIT (BHU), Varanasi, U.P., India. HQPs Trained: 60	2018
Co-Organizer IC-IMPACTS: Conference on Innovations in Safe and Sustainable Infrastructure (2 days) Indian Institute of Technology Roorkee, U.K., India. HQPs Trained: 30	2018
Co-organizer IC-IMPACTS Research Conference and Summer Institute on Nanotechnologies (7 days) University of Alberta, Edmonton. HQPs Trained: 40	2016

MEMBERSHIP IN PROFESSIONAL ORGANISATIONS

ACS ENVR (Division of Environmental Chemistry)	2023
ACS AGRO (Division of Agriculture and Food Chemistry)	2023
American Water Works Association (AWWA)	2014 – Present
British Columbia Water and Waste Association (BCWWA)	2014 – Present
IIT Alumni Canada (IITAC)	2017 - Present

ACADEMIC SERVICE

Member AWWA, Emerging Contaminants Committee	2019 - Present
Chair / Co-Chair Student Leadership Team of IC-IMPACTS (Student Engagement Committee)	2015 - 2022
Member Board of Directors, IIT Alumni Canada (BC)	2020 - 2022
Mentor Indigenous youth (K-12) engagement (RES'EAU CMI)	2017 - 2020
Committee Member International Water Association's Young Water Professionals Conference, Toronto	2019
Committee Member Students and Young Professionals, Canadian Water Resource Association	2019
Committee Member International Association for the Exchange of Students for Technical Experience	2018
Vice-President Graduate Student Club, Department of Chemical and Biological Engineering, UBC	2015 - 2018
Vice-President Indian Graduate Student Association, UBC	2015 - 2017
Laboratory Safety Representative Department of Chemical and Biological Engineering, UBC	2015 - 2016
Member IIT (BHU) Senate Undergraduate Committee (SUGC)	2014

COMMUNITY SERVICE

Volunteer Vancouver Folk Music Festival (Environment Committee)	2015 - 2022
Fundraiser World Wildlife Fund (WWF)	2020 - 2022
Treasurer Parks Canada Club, UBC	2020 - 2022
Community Scientist Telus World of Science, Vancouver	2016 - 2018
Volunteer Vancouver Fan Zone - FIFA Women's World Cup Canada	2015

EXTRA-CURRICULAR ACTIVITIES

Playing Member British Columbia Mainland Cricket League	2017 - 2022
Member Management Committee, IndCan Cricket Club, BC	2019 - 2022
Member Board of Directors, Vancouver Racquets Club, BC	2019 - 2020
Certified Umpire Cricket Canada	2020
Member UBC Thunderbirds Badminton Team	2016 - 2017
Captain IIT (BHU) Badminton Team	2013 - 2014