

## Mahmut S. ERSAN, Ph.D.

Assistant Professor

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### EDUCATION

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- Ph.D.** Department of Environmental Engineering and Earth Science, *Clemson University*, Clemson, SC, USA, **2017**  
Area of focus: Environmental Engineering and Science  
Dissertation Title: The Formation and Control of Selected Unregulated Disinfection By-Products (DBPs) in Water Treatment  
Advisor: Prof. Dr. Tanju Karanfil  
Co-Advisor: Assoc. Prof. David A. Ladner
- M.S.** Institute of Marine Science and Management, *Istanbul University*, Istanbul, Turkey, **2008**  
Area of focus: Chemical Oceanography  
Thesis Title: Heavy Metal Pollution in Golden Horn  
Advisor: Prof. Dr. Nuray Caglar
- B.S.** Department of Environmental Engineering, *Cukurova University*, Adana, Turkey, **2006**  
Area of focus: Environmental Engineering  
Capstone Project: Removal of Vat Blue-4 Textile Dye with Waste Ferric Sulfate Sludge Obtained from Coca-Cola Factory

### ACADEMIC EXPERIENCE

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2023-Present	<b>Assistant Professor</b>	<i>University of North Dakota</i>
2020-2023	<b>Assistant Research Professor</b>	<i>Arizona State University</i>
2017- 2018	<b>Postdoctoral Researcher</b>	<i>Clemson University</i>
2014 (Spring Semester)	<b>Graduate Teaching Assistant</b>	<i>Clemson University</i>
2011-2017	<b>Graduate Research Assistant</b>	<i>Clemson University</i>
2006-2011	<b>Graduate Research Assistant</b>	<i>Istanbul University</i>

### INDUSTRIAL EXPERIENCE

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2018- 2020	<b>Postdoctoral Researcher</b>	<i>Southern Nevada Water Authority</i>
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### PRINCIPAL AREAS OF TEACHING AND RESEARCH

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Teaching: Principle of water reuse; Physicochemical treatment processes in advanced water/wastewater treatment; Sensor applications for emerging contaminants; Laboratory in water and wastewater treatment operations; Environmental organic chemistry; Water treatment principles and design

Research: Application of physicochemical treatment processes for wastewater reuse; Occurrence and characterization of terrestrial and anthropogenic organic matter in water cycle; Formation, toxicity, and control of unidentified disinfection by-products; Innovative nano-enabled clean water technologies for the removal of heavy metals, per- and polyfluoroalkyl substances and other emerging contaminants

### AWARDS AND HONORS

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- Managing and treating per- and polyfluoroalkyl substances (PFAS) in membrane concentrates has been selected as the **2021 AWWA Membrane Treatment Best Paper**, December 17<sup>th</sup>, 2021.

- The Water Environment Association of South Carolina, **Legacy of Learning- A. Ray Abernathy Fellowship Recipient**, March 12<sup>th</sup>, 2017
- Scientific and Technological Research Council of Turkey (TUBITAK), **Directorate of Science Fellowship and Grant Recipient**, April 10<sup>th</sup>, 2017
- Tokyo Institute of Technology Program for Leading Graduate Schools “Academy for Co-Creative Education of Environment and Energy Science (ACEEES)” The Fifth International Education Forum on Environment and Energy Science, **Best Collaboration Award**, San Diego, December 25<sup>th</sup>, 2016
- The SC Section of the American Water Works Association, **Legacy of Learning Scholarship Recipient**- March 13<sup>th</sup>, 2016
- Annual South Carolina Environmental Conference, **Student Poster Award**, 1<sup>st</sup> place, March 10<sup>th</sup>, 2016
- Clemson University Student Government, **Professional Enrichment Grant Recipient**, 2015
- N-Nitrosodimethylamine (NDMA) Precursors Leach from Nanofiltration Membranes was honored by having research featured on the **cover of the March 2015 issue of Environmental Science & Technology Letters**, March 2015
- **South Carolina Environmental Scholars Award**, April 25<sup>th</sup>, 2014
- Annual South Carolina Environmental Conference, **Student Poster Award**, 2<sup>nd</sup> place, 2013
- **The Ministry of Turkish Education Scholarship Recipient**, 2011

## **PUBLICATIONS (h-index = 19, 930 citations via Google Scholar as of 10/2023)**

### **Peer-Reviewed Publications**

1. Farsad, A., Niimi, K., **Ersan, M.S.**, Gonzalez-Rodriguez, J.R., Hristovski, K.D., Westerhoff, P. **2023**. Mechanistic Study of Arsenate Adsorption onto Different Amorphous Grades of Titanium (Hydr) Oxides Impregnated into a Point-of-Use Activated Carbon Block. *ACS ES&T Engineering*.
2. **Ersan, M.S.**, and Ersan G. **2023**. The Removal of N-nitrosodimethylamine, Trihalomethane, and Halonitromethane Precursors by RO Membrane from Water. *Journal of International Environmental Engineering and Science*. 18(1), 1-9.
3. Ersan, G., Cerron-Calle, G.A., **Ersan, M.S.**, Garcia-Segura, S. **2023**. Opportunities for in situ electro-regeneration of organic contaminants-laden carbonaceous adsorbents. *Water Research*. 232, 119718.
4. **Ersan, M.S.** and Dickenson, E.R.V. **2022**. Pretreatment Strategies for Ion Exchange to Control Brominated Disinfection Byproducts in Potable Reuse. *Chemosphere*. 296, 134068.
5. Nienhauser, A.B., **Ersan, M.S.**, Lin, Z., Westerhoff, P., Garcia-Segura, S. **2022**. Boron-Doped Diamond Electrodes Degrade Short- and Long-Chain Per- and Polyfluorinated Alkyl Substances in Industrial Wastewaters. *Journal of Environmental Chemical Engineering*. 107192.
6. Alum, A., Zhao, Z., **Ersan, M.S.**, Mewes, T., Barnes, M., Westerhoff, P., Abbaszadegan, M. **2022**. Implication of Cell Culture Methods and Biases on UV Inactivation of Viruses. *Journal of Virological Methods*. 309, 114610.
7. Chen, H., **Ersan, M.S.**, Karanfil, T., Chow, A.T. **2022**. Chemical characterization of dissolved organic matter as disinfection byproduct precursors by UV/fluorescence and ESI FT-ICR MS after smoldering combustion of leaf needles and woody trunks of pine (*Pinus jeffreyi*). *Water Research*. 209, 117962.
8. Liu, C., Shin, Y-H., Wei, X., **Ersan, M.S.**, Plewa, M., Wagner, E.D., Amy, G., Karanfil, T. **2021**. Preferential halogenation of algal organic matter by iodine over chlorine and bromine: formation of disinfection byproducts and correlation with toxicity of disinfected waters. *Environmental Science and Technology*. 56(2), 1244–1256.
9. Tow, E.W., **Ersan, M.S.**, Kum, S., Lee, T., Speth, T.F., Owen, C., Bellona, C., Nadagouda, M.N., Mikelonis, A.M., Westerhoff, P., Mysore, C., Frenkel, V.S., deSilva, V., Walker, W.S., Safulko, A.K., Ladner, D.A. **2021**. Managing and treating PFAS in membrane concentrates. *AWWA Water Science*. 3(5), 1233.

10. Ersan, G., **Ersan, M.S.**, Kanan, A., and Karanfil, T. **2021**. Predictive modeling of haloacetonitriles under uniform formation conditions. *Water Research*, 201, 117322.
11. Ersan G., and **Ersan, M.S.** **2021**. Are carbon-based nanomaterials for the adsorption of organic contaminants perform better than nanoplastics (NPs) and microplastics (MPs)? *Journal of International Environmental Engineering and Science*, 16 (2), 72-81.
12. Bakkaloglu, S., **Ersan, M.S.**, Apul O., Karanfil, T. **2021**. Effect of superfine pulverization of powdered activated carbon on adsorption of carbamazepine in natural source waters. *Science of the Total Environment*, 793, 148473.
13. Liu, C., **Ersan, M.S.**, Plewa, M., Wagner, E.D., Amy, G., Karanfil, T. **2020**. Toxicity of chlorinated algal-impacted waters: Formation of disinfection byproducts vs. reduction of cyanotoxins. *Water Research*, 184, 116145.
14. Soyluoglu, M., **Ersan, M.S.**, Ateia, M., Karanfil, T. **2020**. Removal of bromide from natural waters: bromide-selective vs. conventional ion exchange resins. *Chemosphere*, 238, 124538.
15. **Ersan, M.S.**, Liu, C., Plewa, M., Wagner, E.D., Amy, G., Karanfil, T. **2019**. Chloramination of iodide-containing waters: formation of iodinated disinfection byproducts and toxicity correlation with total organic halides of treated waters. *Science of the Total Environment*, 697, 134142.
16. Liu, C., **Ersan, M.S.**, Plewa, M., Amy, G., Karanfil, T. **2019**. Formation of iodinated trihalomethanes and noniodinated disinfection byproducts during chloramination of algal organic matter extracted from *Microcystis Aeruginosa*. *Water Research*, 162, 115-126.
17. Ateia, M., Erdem, C.U., **Ersan, M.S.**, Ceccato, M., Karanfil, T. **2019**. Selective removal of bromide and iodide from natural waters using a novel AgCl-SPAC composite at environmentally relevant conditions. *Water Research*, 156, 168-178.
18. Beita-Sandi, W., Selbes., M., **Ersan, M.S.**, Karanfil, T. **2019**. Release of nitrosamines and nitrosamine precursors from scrap tires. *Environmental Science and Technology Letters*, 6 (4), 251-256.
19. Ersan, G., Kaya Y., **Ersan, M.S.**, Apul O., Karanfil, T. **2019**. Adsorption kinetics and aggregation for three classes of carbonaceous adsorbents in the presence of natural organic matter. *Chemosphere*, 229, 515-524.
20. **Ersan, M.S.**, Liu, C., Amy, G., Karanfil, T. **2019**. The interplay between natural organic matter and bromide on bromine substitution. *Science of the Total Environment*, 646, 1172-1181.
21. Liu, C., **Ersan, M.S.**, Plewa, M., Amy, G., Karanfil, T. **2018**. Formation of regulated and unregulated disinfection byproducts during chlorination of algal organic matter extracted from freshwater and marine algae. *Water Research*, 142, 313-324.
22. **Ersan, M.S.**, Ladner, D.A. and Karanfil, T. **2016**. The control of N-nitrosodimethylamine, halonitromethane, and trihalomethane precursors by nanofiltration. *Water Research*, 105, 274-281.
23. Beita-Sandi, W., **Ersan, M.S.**, Uzun, H. and Karanfil, T. **2016**. Removal of N-nitrosodimethylamine precursors with powdered activated carbon adsorption. *Water Research*, 88, 711-718.
24. Wang, J.J., Dahlgren, R.A., **Ersan M.S.**, Karanfil T., and Chow A.T. **2016**. Temporal variations of disinfection byproduct precursors in wildfire detritus. *Water Research*, 99, 66-73.
25. **Ersan, M.S.**, Ladner, D.A. and Karanfil, T. **2015**. N-Nitrosodimethylamine (NDMA) precursors leach from nanofiltration membranes. *Environmental Science and Technology Letters*, 2, 66-69.
26. Wang, J.J., Dahlgren, R.A., **Ersan M.S.**, Karanfil T., and Chow A.T. **2015**. Wildfire altering terrestrial precursors of disinfection byproducts in forest detritus. *Environmental Science and Technology*, 49:10, 5921-5929.
27. Barut, I.F., Nazik, A., Balkis, N., Aksu A., **Ersan, M.S.** **2015**. Ostracoda as bioindicators of anthropogenic impact in salt lakes, saltpans, and a lagoon: A case study from the Gulf of Saros coast (NE Aegean Sea), Turkey. *Revue de micropaleontology*, 58, 351-367.
28. Balkis, N., Aksu, A., **Ersan, M.S.** **2011**. Petroleum hydrocarbon contamination of the Southern Black Sea Shelf, Turkey. *Environmental Science and Pollution Research*, 19, 592-599.

29. **Ersan, M.S.**, Balkis, N., Muftuoglu A.E., Aksu, A., and Burak, S. **2011**. Metal pollution in surface sediments of the Golden Horn Estuary (Marmara Sea, Turkey) after the remedial actions. *Asian Journal of Chemistry*, 23, 3320-3324.
30. Aksu, A., Balkis, N., **Ersan, M.S.**, Muftuoglu A.E., Apak, R. **2010**. Biogeochemical cycle of arsenic and calculating enrichment factor by using li element. *Environmental Geochemistry and Health, Special Issue*. 32, 303-306.
31. Balkis, N., Aksu, A., **Ersan, M.S.**, Muftuoglu A.E., Zeki, S., Demir, V., and Taskin, Ö.S. **2010**. Tracing of the leachate in the marine medium. *Asian Journal of Chemistry*, 22, 5859-5864.
32. Kurun, A., Balkis, N., Erkan, M., Balkis, H., Aksu, A., **Ersan, M.S.** **2010**. Total metal levels in crayfish *Astacus Leptodactylus* (Eschscholtz, 1823) and surface sediments in Lake Terkos, Turkey. *Environmental Monitoring and Assessment*, 169, 385-395.
33. Aksu, A., Balkis, N., Taskin, Ö.S and **Ersan, M.S.** **2010**. Toxic metal (Pb, Cd, As and Hg) and organochlorine residue levels in Hake (*merluccius merluccius*) from the Marmara Sea, Turkey. *Environmental Monitoring and Assessment*, 182, 509-521.

### **Publications under Review**

1. Ersan, G., **Ersan, M.S.**, Perreault, F., Garcia-Segura S. **2023**. Developing a proof-of-concept electro regeneration system for PFAS-laden carbon: Benchmarking single use vs reuse. *ES&T Letters (Under Review)*.
2. Calvillo Solis, J.; Yin, S., **Ersan, M.S.**, Galicia, M., Westerhoff, P., Villagrán, D. **2023**. Forever chemicals detection: A nano-enabled electrochemical sensing approach for Perfluorooctanoic acid (PFOA). *Submitted to ES&T Letters (Under Review)*.
3. Schneider, O., **Ersan, M.S.**, Alvarez, J., Christ, E. **2023**. Electrochemical Destruction of PFOA and PFOS in High Salinity Water. *AWWA Water Science (Under Review)*.
4. Chen, H., Rücker, A.M., **Ersan, M.S.**, Majidzadeh, H., Miller, D., Schlesinger, D.R., Shen, D., Myneni, S. C. B., Bao, S., Conner, W.H., Chow, A.T. **2023**. Elevated salinity promotes dissolved organic carbon production during litter decomposition in coastal rivers. *Nature Communications (Under review)*.

### **Publications under Internal Review**

1. **Ersan, M.S.**, Kim, D., Karanfil, T., Dickenson, E.R.V. **2023**. Nitrogenous and carbonaceous DBP precursor leach from brake pads. *Environmental Science and Technology Letters (to be submitted)*.
2. **Ersan, M.S.**, Marti, E.J., Reckhow, D.A., Dickenson, E.R.V. **2023**. A Critical review of the formation and treatment of haloacetonitriles in drinking water. *Water Research (to be submitted)*.
3. **Ersan, M.S.**, Amy, G., Plewa, M., Karanfil, T. **2023**. Iodinated and brominated disinfection byproduct formation during chloramination of effluent organic matter (EFOM) *(to be submitted)*.
4. Ersan, G., **Ersan, M.S.**, Karanfil, T. **2023**. Statistical modeling of iodinated trihalomethanes (I-THMs) formation during chloramination and prechlorination/chloramination processes. *Water Research (to be submitted)*.
5. Lin, Z., **Ersan, M.S.**, Garcia-Segura S., Perreault, F., Westerhoff, P. **2023**. Bioaccumulation Potential and Adsorbable Organic Fluorine for Quantification of Electrocatalysis Treated Per- and Polyfluoroalkyl Substances. *Target Journal: ES&T Letters (In Preparation)*.
6. Zhang, Z., **Ersan, M.S.**, Westerhoff, P., Herckes, P. **2023**. The importance of surface charges on polymeric filters and airborne particles on removal efficiency of virus by facial masks. *Environmental Science and Technology (In preparation)*.
7. **Ersan, M.S.**, Sharma, N., Kim, Daekyun, Westerhoff, P., Karanfil, T., Dickenson, E. R. **2023**. Pilot-scale evaluation of IX and SIAC for the removal of DBP precursors in a surface water and potable reuse. *Water Research (In preparation)*.

### **Book Chapters (Peer reviewed)**

1. Ersan G., and **Ersan, M.S.** 2023. Nano-sensors for the detection of contaminants in aqueous water. Nanotechnology for Sustainable Agriculture, Food and Environment. Chapter 7. ISBN: 9781003397861.
2. Ersan G., and **Ersan, M.S.** 2022. Application of nanoparticles for environmental remediation: potential impacts of carbon- and metal-based engineered nanoparticles. *Green Synthesis and Applications of Nanomaterials*. Chapter 9. ISBN10: 179988936X, Pages 199-222.
3. Ersan G., and **Ersan, M.S.** 2023. Nano-sensors for the detection of contaminants in aqueous water. Nanotechnology for Sustainable Agriculture, Food and Environment. (*In preparation - Will be published by CRC Press, Taylor & Francis Group in June 2023*)

### **Conference Proceedings and Presentations**

1. Ali Abdulmalik, M., Xiao, F., **Ersan, M.S.** Spectrometric Detection of Microplastics in the Environment: A Novel Approach using Hyperspectral Imaging System. North Dakota Water Pollution Conference, October 2023, Grand Forks, North Dakota (Poster Presentation).
2. Ali Abdulmalik, M., Xiao, F., **Ersan, M.S.** Spectrometric Detection of Microplastics in the Environment: A Novel Approach using Hyperspectral Imaging System. 3<sup>rd</sup> Annual South Dakota Student Water Conference, September 2023. Brookings, South Dakota (Oral Presentation).
3. **Ersan, M.S.**, Westerhoff, P. Current and future analytical needs for water quality measurements in the drinking, industrial, and wastewater sectors. SPIE BiOS 2023, March 6. San Francisco, California.
4. **Ersan, M.S.**, Armstrong, N., Westerhoff, P. Screening to Identify Commercially Available Advanced Oxidation Processes to Remove PFASs from Groundwater. ACS Spring 2023, March 26-30. Indianapolis, Indiana (Oral Presentation).
5. Ersan, G., **Ersan, M.S.**, François Perrault, Garcia-Segura, S. In situ electro-regeneration of per- and polyfluoroalkyl substances (PFAS)-spent carbon. ACS Spring 2023, March 26-30. Indianapolis, Indiana (Oral Presentation).
6. Kajjumba, G.W., Mohan, A., Ray, H., Washington, A., Gajurel, A., Haider, K., Marti, E., **Ersan, M.S.**, Reckhow, D., Dickenson, E. Formation and Mitigation of Haloacetonitriles in Potable Reuse. *Water Reuse Symposium*, March 2023, Atlanta, GA (Oral Presentation).
7. **Ersan, M.S.** and Westerhoff, P. Current and future analytical needs for water quality measurements in the drinking, industrial, and wastewater sectors. SPIE Photonics West, January 2023, (Oral Presentation).
8. Saleh, L., Remot, M., **Ersan, M.S.**, Coutanceau, C., Westerhoff, P., Croue, J.P. Degradation of PFAS by Electrochemical Oxidation. *REMTECH Europe*, September 2022, (Oral Presentation).
9. Saleh, L., **Ersan, M.S.**, Croue, J.P., Westerhoff, P. Electrochemical Oxidation of PFOA in Brine Solutions. 2022. US-North Africa conference on Nanotechnology Convergence for Sustainable Energy, Health, and Environment. (Oral Presentation).
10. **Ersan, M.S.**, Kim, Daekyun, Sharma, N., Westerhoff, P., Karanfil, T., Dickenson, E. R. Pilot-scale evaluation of IX and SIAC for the removal of DBP precursors in a surface water and potable reuse. *ACS Fall Meeting*, August 2021, Atlanta, GA. (Oral Presentation).
11. **Ersan, M.S.**, Kim, Daekyun, Karanfil, T., Dickenson, E. R. Automobile Brake Pads: A Source of DBP precursors in stormwater runoff. *ACS Fall Meeting*, August 2021, Atlanta, GA. (Oral Presentation).
12. Zhang, Z., **Ersan, M.S.**, Westerhoff, P., Herckes, P. Particle capture efficiency studies on face mask. *ACS Fall Meeting*, August 2021, Atlanta, GA. (Poster Presentation).
13. Niimi, K., **Ersan, M.S.**, Zeng, C., Westerhoff, P., He, Q., Venkatesh, K. PFAS removal by GAC & IX from groundwaters using RSSCTs. AWWA Virtual Summit, February 2021. (Oral Presentation).

14. **Ersan, M.S.** and Dickenson, E.R.V. How to improve the efficiency of ion exchange resins in water reuse: an evaluation on the removal of brominated and iodinated DBPs. *Water Quality Technology Conference*, November **2019**, Dallas, TX (Oral Presentation).
15. Soyluoglu, M., **Ersan, M.S.**, Ateia, M., Karanfil, T. Removal of bromide from natural waters: bromide-selective vs. conventional ion exchange resins. *Water Quality Technology Conference*, November **2019**, Dallas, TX (Oral Presentation).
16. Ateia, M., Erdem, C.U., **Ersan, M.S.**, Ceccato, M., Karanfil, T. Selective removal of bromide and iodide from natural waters using a novel AgCl-SPAC composite. *Water Quality Technology Conference*, November **2019**, Dallas, TX (Oral Presentation).
17. **Ersan, M.S.** and Dickenson, E.R.V. Enhancing the efficiency of ion exchange resins to remove DBP precursors in water reuse. *34 Annual Water Reuse Symposium*, September **2019**, San Diego, CA (Oral Presentation).
18. **Ersan, M.S.**, and Dickenson, E.R.V. Evaluation of ion exchange resins to remove DBP precursor, bromide, in potable reuse. *Gordon Research Conference: Drinking Water Disinfection By-Products*, August **2019**, South Hadley, MA (Poster Presentation).
19. Thompson, K., **Ersan, M.S.**, Dickenson, E.R.V. Cross-validating chlorine demand models for mechanistic DBP prediction. *Gordon Research Conference: Drinking Water Disinfection By-Products*, August **2019**, South Hadley, MA (Poster Presentation).
20. Liu, C., **Ersan, M.S.**, Plewa, M., Amy, G., Karanfil, T. Theoretical and measured toxicity of algae-derived waters in the presence of bromide and iodide after combined chlorination and chloramination *Gordon Research Conference: Drinking Water Disinfection By-Products*, August **2019**, South Hadley, MA (Poster Presentation).
21. Ku, P., Tsui, M., **Ersan, M.S.**, Karanfil, T., Chow, A. Effects of saltwater addition on methylmercury production in coastal freshwater wetlands. *August 100 Fall Meeting*, December **2018**, Washington, D.C (Poster Presentation).
22. Liu, C., **Ersan, M.S.**, Plewa, M., Amy, G., Karanfil, T. Formation, speciation, and toxicity of disinfection byproducts during chlorination of algal organic matter. *American Water Works Association Annual Conference and Exhibition*, June **2018**, Las Vegas, NV (Oral Presentation).
23. **Ersan, M.S.** Understanding the impacts of wildfires on surface water. *South Carolina Environmental Conference*, March **2018**, Myrtle Beach, SC (Oral Presentation).
24. Soyluoglu, M., **Ersan, M.S.**, Ateia, M., Beita Sandí, W., Karanfil T. The impact of bromide-selective ion exchange resin on bromide removal and bromine incorporation in disinfection byproducts. *South Carolina Environmental Conference*, March **2018**, Myrtle Beach, SC (Poster Presentation).
25. Habip, N., **Ersan, M.S.**, Liu, C., Amy, G., Karanfil T. Preformed chloramination vs prechlorination: formation, speciation, and toxicity of disinfection byproducts in desalinated water blended with effluent impacted surface waters. *South Carolina Environmental Conference*, March **2018**, Myrtle Beach, SC (Poster Presentation).
26. Russell, C., **Ersan, M.S.**, Brown, R., Kuhnel, B. Unintended consequences of implementing nitrosamine control strategies. *Water Quality Technology Conference & Exposition*, November **2017**, Portland, OR (Oral Presentation).
27. Liu, C., **Ersan, M.S.**, Amy, G., Plewa, M., Karanfil, T. Formation and toxicity of disinfection by-products during chlorination of intracellular organic matter produced by bloom-forming freshwater and marine algae. *Gordon Research Conference: Drinking Water Disinfection By-Products*, August **2017**, South Hadley, MA (Poster Presentation).
28. **Ersan, M.S.**, Liu, C., Amy, G., Plewa, M., Karanfil, T. Formation, speciation, and toxicity of chlorinated/brominated/iodinated DBPs under chloramination conditions. *American Water Works Association Annual Conference and Exhibition*, June **2017**, Philadelphia, PA (Oral Presentation).
29. **Ersan, M.S.**, Liu, C., Amy, G., Plewa, M., Karanfil, T. Formation, speciation, and toxicity of disinfection by-products during chloramination of bromide and iodide containing waters. *South Carolina Environmental Conference*, March **2017**, Myrtle Beach, SC (Oral Presentation).

30. **Ersan, M.S.**, Liu, C., Amy, G., Plewa, M., Karanfil, T. The impact of halides on the formation and toxicity of disinfection by-products during chloramination. *South Carolina Environmental Conference*, March 2017, Myrtle Beach, SC (Poster Presentation).
31. **Ersan, M.S.**, Liu, C., Amy, G., Karanfil, T. Formation, speciation, and toxicity of disinfection by-products in blending desalinated seawater and fresh waters. *The Fifth International Education Forum on Environment and Energy Science. "Academy for Co-Creative Education of Environment and Energy Science (ACEEES)*, December 2016, San Diego, CA (Oral Presentation).
32. Russell, C., **Ersan, M.S.**, Brown, R., Karanfil T., Cornwell, D. Framework for responding to a potential nitrosamine regulation: case study evaluation. *WQTC Conference*, November 2016, Indianapolis, IN (Oral Presentation).
33. Karanfil T., **Ersan M.S.**, Wang, J.J., Dahlgren, R.A., and Chow A.T. 2016. Short-term temporal variation of disinfection byproduct precursors in wildfire affected watershed. *WQTC Conference*, November 2016, Indianapolis, IN (Poster Presentation).
34. **Ersan, M.S.**, Ladner, D.A. and Karanfil, T. The control of NDMA, THM, and HNM precursors by nanofiltration. *Gordon Research Conference: Drinking Water Disinfection By-Products*, August 2015, South Hadley, MA (Poster Presentation).
35. **Ersan, M.S.**, Ladner, D.A. and Karanfil, T. The removal of DBP precursors using nanofiltration. *South Carolina Environmental Conference*, March 2014, Myrtle Beach, SC (Poster Presentation).
36. **Ersan, M.S.**, Ladner, D.A. and Karanfil, T. The control of NDMA, THM, and HNM precursors by nanofiltration. *American Water Works Association Annual Conference and Exhibition*, June 2015, Anaheim, CA (Oral Presentation).
37. **Ersan, M.S.**, Ladner, D.A. and Karanfil, T. The release of NDMA precursors from nanofiltration membranes and their cleaning. 2014 *South Carolina Environmental Conference*, March 2014, Myrtle Beach, SC (Oral and Poster Presentation).
38. Ersan, G., **Ersan, M.S.**, and Karanfil, T. Adsorption kinetics of TCE by graphene nanosheets and GAC under different NOM preloading and simultaneous adsorption conditions. *South Carolina Environmental Conference*, March 2014, Myrtle Beach, SC (Poster Presentation).
39. Beita-Sandi, W., **Ersan, M.S.**, and Karanfil, T. Removal of NDMA and THM precursors using powdered activated carbon. *South Carolina Environmental Conference*, March 2013, Myrtle Beach, SC (Oral and Poster Presentation).
40. Okuş E., Aksu, A., Balkıs, N., and **Ersan, M.S.** Dissolved oxygen (DO) and total suspended solid (TSS) changes in the Gökova Bay, Turkey. *MEDCOAST Proceedings of the 8th International Conference on the Mediterranean Coastal Environment*, November 2007, Egypt (Poster Presentation).
41. Okuş E., Aksu, A., Balkıs, N., and **Ersan, M.S.** Heavy metal concentrations in water and sediment from the Gökova Bay, Turkey. *MEDCOAST Proceedings of the 8th International Conference on the Mediterranean Coastal Environment*, November 2007, Egypt (Poster Presentation).
42. Balkıs, N., Aksu, A., **Ersan, M.S.**, Erçağ, E., and Apak, R. Metal contamination of the Gökova Bay. *International Conference, 6th Aegean Analytical Chemistry Days*. October 2008, Pamukkale-Denizli, Turkey (Poster Presentation).
43. Balkıs, N., Aksu, A., **Ersan, M.S.**, Erçağ, E., and Apak, R. Chemical oceanography of the southern Black Sea shelf waters. *International Conference, 6th Aegean Analytical Chemistry Days*. October 2008, Pamukkale-Denizli, Turkey (Poster Presentation).

## **EXTERNALLY FUNDED RESEARCH EXPERIENCE**

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**Department of Civil and Environmental Engineering, University of North Dakota 2023-Present**

**Active**

1. **Project Title:** Evaluation of regeneration efficiency of PFAS laden IX media and brine solutions  
**Funding Agency:** DeNORA Water Technologies  
**Responsibility:** PI

**School of Sustainable Engineering and the Built Environment, Arizona State University 2020-2023**

**Finished**

1. **Project Title:** Infrared sensor for screening of emerging contaminants in water  
**Partnership:** Max-IR Labs, Inc.  
**Funding Agency:** National Institute of Health  
**Responsibility:** Co-PI
2. **Project Title:** In situ electro-regeneration of PFAS-laden sorbents after use in groundwater remediation: Benchmarking single use vs. reuse  
**Funding Agency:** ASU Foundation: Phoenix-Scottsdale Groundwater Endowment  
**Responsibility:** Co-PI
3. **Project Title:** PFAS destruction by Aclarity eAOP reactor  
**Funding Agency:** Aclarity LLC.  
**Responsibility:** PI
4. **Project Title:** EAOP treatment of PFAS laden IX regeneration brine  
**Funding Agency:** DeNORA Water Technologies  
**Responsibility:** PI
5. **Project Title:** Evaluation of eAOP efficiency for PFAS removal from foam fractionate  
**Funding Agency:** Aclarity LLC.  
**Responsibility:** PI
6. **Project Title:** Electrochemical Detector for PFAS in Water  
**Funding Agency:** NEWT Non-core Project  
**Responsibility:** Co-PI
7. **Project Title:** Phase 1- AOP Review for PFAS Degradation in Potable Waters  
**Funding Agency:** DeNORA Water Technologies  
**Responsibility:** Co-PI
8. **Project Title:** UV, UV/H<sub>2</sub>O<sub>2</sub>, and O<sub>3</sub>/H<sub>2</sub>O<sub>2</sub> PFAS treatability screening using real groundwater  
**Funding Agency:** DeNORA Water Technologies  
**Responsibility:** Co-PI and conducting advanced oxidation processes experiments
9. **Project Title:** Evaluating nitrate treatment requirements and comparison of commercially available vs NEWT novel nitrate removal technologies  
**Funding Agency:** United Nations Food and Agriculture Organization and National Water Commission (NWC) of Kingston, Jamaica  
**Responsibility:** Data analysis and report preparation



10. **Project Title:** Disinfection and Reuse of Health-Care Worker Facial Masks to Prevent Infection coronavirus disease  
**Funding Agency:** NSF CBET - Nanoscale Interactions Program  
**Responsibility:** Experimental design and preparation of deliverables
11. **Project Title:** Ultraviolet LED Transmitter Array Surface “Virtual” Disinfection evaluation  
**Funding Agency:** Galileo Group  
**Responsibility:** Experimental design for chemical oxidation reactions
12. **Project Title:** Removal of PFAS from groundwater using activated carbon and ion exchange resins  
**Funding Agency:** Carollo Engineers  
**Responsibility:** Bench scale PFAS sorption tests

#### **Water Quality Research and Development, Southern Nevada Water Authority 2018- 2020**

1. **Project Title:** DPR-4: Treatment for averaging potential chemical peaks (California State Water Resources Control Board – Agreement No. D1705002)  
**Funding Agency:** Water Research Foundation, WRF#4991  
**Responsibility:** Report preparation and experimental design, sample preparations, and coordination with participants
2. **Project Title:** Precursors and control of halogenated acetonitriles  
**Funding Agency:** Water Research Foundation, WRF#5053  
**Responsibility:** Literature review and proposal writing
3. **Project Title:** Occurrence survey of bromide and iodide in water supplies  
**Funding Agency:** Water Research Foundation, WRF#4711  
**Responsibility:** Report preparation, field sampling and bench scale tests to evaluate the removal of bromide and iodide by ion exchange resins
4. **Project Title:** Investigation of treatment alternatives for short-chain PFASs  
**Funding Agency:** Water Research Foundation, WRF#4913  
**Responsibility:** Proposal writing and report preparation. Bench scale tests to evaluate ion exchange resin performance on short-chain PFASs removal
5. **Project Title:** Fate and adsorption of organic contaminants onto polymer-based microfibers in potable water reuse.  
**Funding Agency:** Southern Nevada Water Authority (Internal project)  
**Responsibility:** Report preparation. Bench scale tests to investigate the adsorption of contaminants onto polymer-based microfibers (such as polyethylene [PE], polyamide [PA], polypropylene [PP], and polystyrene [PS]) in potable water reuse.

#### **Department of Environmental Engineering and Earth Sciences, Clemson University 2011- 2018**

1. **Project Title:** Formation and toxicity of disinfection byproducts in desalinated waters  
**Funding Agency:** National Science Foundation, NSF # 1511051  
**Responsibility:** Proposal writing and report preparation. Bench scale tests to understand the formation, speciation, and toxicity of brominated and iodinated DBPs from natural organic matter (NOM), algal organic matter (AOM), and effluent organic matter (EfOM)

2. **Project Title:** Fuel reduction techniques as effective forested watershed management practices against wildfire: drinking water quality aspects  
**Funding Agency:** United States Environmental Protection Agency, USEPA # R835864  
**Responsibility:** Field sampling and bench scale tests to understand the impact of wildfires on surface water quality, treatability, and subsequent DBP formation.
3. **Project Title:** Unintended consequences of implementing nitrosamine control strategies  
**Funding Agency:** Water Research Foundation, WRF # 4491  
**Responsibility:** Report preparation. Bench scale chlorination and ozonation experiments to minimize the formation of NDMA, THMs, and HAAs
4. **Project Title:** Seasonal changes of NDMA FP in surface waters and its removal during water treatment  
**Funding Agency:** Water Research Foundation, WRF # 4444  
**Responsibility:** Report preparation. Bench scale activated carbon adsorption tests to remove NDMA precursors
5. **Project Title:** Coupling small-particle adsorbents with membranes for trace-contaminant removal in water treatment  
**Funding Agency:** National Science Foundation, NSF # 1236070  
**Responsibility:** Report preparation. Characterization of SPAC particles (i.e., BET, CHNSO, Surface Charge)

#### **Department of Chemical Oceanography, Istanbul University, Turkey 2008-2011**

1. **Project Title:** Black Sea Pollution Prevention Project  
**Funding Agency:** Turkish Ministry of Environment  
**Responsibilities:** Report preparation. Field sampling and analysis of water samples (PAHs, DOC, DON, heavy metals), sediment (PAHs, CHNS-O and heavy metals deposition), and biota (population count and heavy metal accumulation)
2. **Project Title:** Marmara Pollution Prevention Project  
**Funding Agency:** Istanbul Metropolitan Municipality  
**Responsibilities:** Report preparation. Field sampling and analysis of water samples (PAHs, DOC, DON, heavy metals), sediment (PAHs, CHNS-O and heavy metals deposition), and biota (population count and heavy metal accumulation)
3. **Project Title:** Golden Horn Pollution Prevention Project  
**Funding Agency:** Istanbul Metropolitan Municipality  
**Responsibilities:** Report preparation. Field sampling and analysis of water samples (PAHs, DOC, DON, heavy metals), sediment (PAHs, CHNS-O and heavy metals deposition), and biota (population count and heavy metal accumulation).

#### **TEACHING EXPERIENCE**

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**Guest Lecturer** University of North Florida, FL, **Spring 2023**

Course: An introduction to Advanced Wastewater Treatment

Topic: Unit Operations

**Guest Lecturer** California State University Sacramento, CA, **Spring 2022**

Course: Water Resources Engineering (CE 130)

Topic: Adsorption

**Guest Lecturer** New Mexico Institute of Mining and Technology, NM, **Spring 2022**  
Title: The Formation, Toxicity and Control of Emerging Contaminants in Water Treatment and Potable Water Reuse

**Guest Lecturer** University of Nevada, Reno, NV, Spring **2020**  
Course: Water Resources Engineering  
Topic: Introduction to Water Conservation and Reuse

**Guest Lecturer** Pinecrest Academy of Nevada-Horizon Campus, NV, Spring **2020**  
Course: STEM- Dye removal by adsorption

**Instructor** Clemson University, SC, Spring **2015**  
Course: Laboratory in Water and Wastewater Treatment Operations  
The focus of this class was to demonstrate the principles of physicochemical and biological operations of water and wastewater treatment systems via laboratory exercises such as coagulation and flocculation, precipitation, sedimentation, filtration, and activated carbon adsorption.

## **MENTORING EXPERIENCE**

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### **School of Sustainable Engineering and the Built Environment, Arizona State University 2020-Present**

- Supervised 2 master (Ken Niimi and Jiefei Cao), 3 doctoral students (Ali Reza Farsad, Zhaobo Zhang, Zunhui Lin), and 2 undergraduate students (Ashlyn Laird and Katie Sue Pascavis) through formulating their research plans, teaching laboratory and research techniques, and reviewing reports and documents.

### **Water Quality Research and Development, Southern Nevada Water Authority 2018- 2020**

- Served as a peer mentor for 3 master students (Ian Sims, Bright Huang, Natalie Pinon) and 1 doctoral student (Soroosh Mortazavian) following up their dissertation progresses.

### **Department of Environmental Engineering and Earth Sciences, Clemson University 2011- 2018**

- Supported and provided specific feedback for 5 masters (Partiban Raja, Numan Habip, Meryem Soyluoglu, Cagri Utku Erdem, Semra Bakkaloglu), 2 doctoral students (Lucy Zhang, Wilson Beita Sandi), and 3 international visiting scholars (Yiran Ren, Tianlin Song, Gamze Ersan) on their personal development in academia, networking, and collaboration with other peers.
- Served as a peer mentor for 1 undergraduate student (Jackie Lauer) in assisting her transition from undergraduate to graduate school.

## **OTHER PROFESSIONAL/ SERVICE/OUTREACH ACTIVITIES**

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### **Committee Involvements:**

- **Master Thesis Committee:** Jiefei Cao, Arizona State University, July 2021.
- **Undergraduate honors thesis committee:** Ashlyn Laird, Arizona State University, March 2021, Tempe, AZ

### **Synergistic Outreach Activities:**

- **AWWA M20 Manual preparation Chapter Lead**, August 2023-Present
- **Clean Tech Competition Judge:** Spellman High Voltage Electronics Clean Tech Competition “Preserving Planet Earth”, May 2021.
- **Discussion Leader:** Gordon Research Conference: Drinking Water Disinfection By-Products, July 2019, South Hadley, MA
- **Graduate Poster Judge:** The annual ACS-SNS poster contest at Nevada State College, November 2018 and 2019, Henderson, NV

### **Scientific and Professional Societies:**

- American Chemical Society-**2021-Present**
- Member of Water Reuse Nevada Section- **2018- Present**
- Association of Environmental Engineering and Science Professors (AEESP)-**2015-Present**
- Member of American Water Works Association- **2012-Present**
- North American Membrane Society (NAMS)-**2015-2017**
- Vice President of Turkish Student Association-**2014-2016**

### **Reviewer:**

- Environmental Science and Technology
- Water Research
- ACS ES&T Water
- Environmental Pollution
- Chemosphere
- Water Science and Technology
- Science of Total Environment
- Environmental International
- Journal of Hazardous Materials
- Water Science and Technology
- Journal of Water and Health
- Chemical Engineering Journal Advances
- Journal of Cleaner Production

### **Experience using Analytical Instruments:**

- Agilent 6490 Triple Quad LC/MS
- Thermo TSQ9000 GC/MS Triple Quad
- Metrohm Combustion Ion Chromatography (CIC)
- Attension Theta Tensiometer for Surface Contact Angle
- Bruker IFS66 V/S FT-IR
- Shimadzu Flame Atomic Absorption (FAAS)
- Agilent 7000C GC/MS Triple Quad
- Agilent 6890 & 6850 GC-ECD
- Dionex Ultimate 3000 HPLC
- Analytic Jena Multi X 2500 TOX Analyzer
- Dionex ICS-2100 Ion Chromatography (IC)
- Shimadzu TOC-VCHS or TOC-LCHS High Temperature Combustion Analyzer

- FlashEA 1112 Series CHNS-O Analyzer
- Micrometrics ASAP 2010/2020
- Anton-Paar SurPASS Electrokinetic Analyzer
- Varian Cary 50 UV-Vis Spectrophotometer
- Parker THM Analyzer
- KETOS Shield

**Computer Skills:**

- Labview
- Minitab
- Python
- Origin, SigmaPlot, ChemDraw, and Photoshop

**Internships:**

- Özbucak Textile Wastewater Treatment Plant, Adana, Turkey (2005)
- Bahçeşehir Wastewater Treatment Plant, Istanbul, Turkey (2005)
- Çatalan Water Treatment Plant, Adana, Turkey (2004)

**Hobbies and Other Skills:**

- Scuba Diving (PADI-Certified, License#0809U00830)
- Scientific Diver (PADI- Certified, License#1010UJ9965)
- Emergency First Responder (EFR-Certified, License#1009UG6971)
- Musical Instruments: Bamboo nay flute, clarinet, guitar, piano, and hand drum