

# Mohamed Ateia Ibrahim, Ph.D.

**Environmental Engineer/Group Leader**, US Environmental Protection Agency (US EPA)

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## APPOINTMENTS

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- Environmental Engineer and Group Leader** [08/2021 – Current] – **US Environmental Protection Agency**  
Office of Research and Development  
Center for Environmental Solutions & Emergency Response (CESER), OH, **USA**.
- Adj. Assistant Professor** [01/2023 – Current] – **Rice University**  
Chemical and Biomolecular Engineering Department, TX, **USA**.

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## PROFESSIONAL PREPARATION

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- Research Associate** [11/2019 – 07/2021] – Department of Chemistry.  
Northwestern University, IL, **USA**.  
**PI:** Prof. William Dichtel
- Post-doc.** [11/2017 – 10/2019] – Environmental Engineering and Earth Sciences.  
Clemson University, SC, **USA**. [*Distinguished Postdoctoral Award* ★]  
**PI:** Prof. Tanju Karanfil
- Ph.D.** [10/2014 – 09/2017] – Environmental Engineering (Minor in Material Science Engineering).  
Tokyo Institute of Technology, Tokyo, **Japan**. [*Best Ph.D. Dissertation Award* ★]  
**Advisor:** Prof. Chihiro Yoshimura
- [06/2015 – 10/2015 - 07/2016 – 10/2016] – Environmental Chemistry (Visiting Researcher)  
Department of Chemistry, University of Copenhagen, **Denmark**.  
**Host:** Prof. Matthew S. Johnson
- M.S.** [10/2012 – 09/2014] – Environmental Engineering (Minor in Material Science Engineering).  
Tokyo Institute of Technology, Tokyo, **Japan**.  
**Advisor:** Prof. Chihiro Yoshimura
- [08/2013 – 09/2013] – Science Communication for Global Scientists (Intern)  
The Royal Society and Parliamentary Office of Science and Technology (POST), London, **UK**.  
**Host:** Prof. Michael Norton
- B.S.** [09/2005 – 06/2009] – Environmental and Agricultural Engineering.  
Alexandria University, Alexandria, **Egypt**.

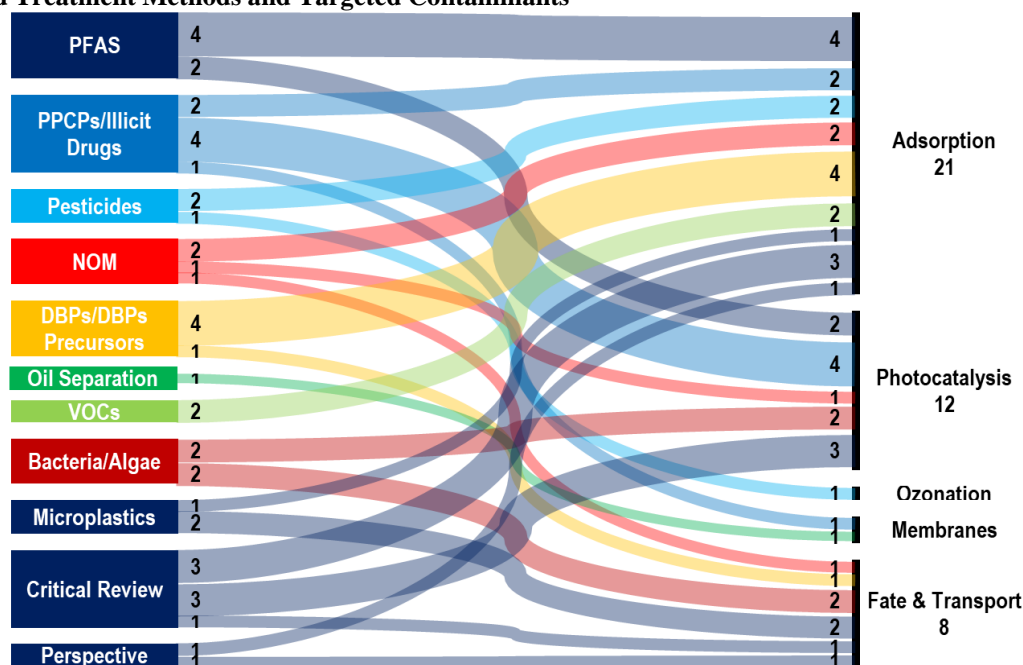
## AWARDS AND HONORS

11. **11/2022: 2022 40 under 40 Recognition Program**, The American Academy of Environmental Engineers and Scientists.
10. **08/2019: 2019 Clemson University Distinguished Postdoctoral Award**, Clemson University, USA.
9. **06/2019: Certificate of Merit**, Division of Environmental Chemistry, American Chemical Society.
8. **04/2019: Outstanding Presentation Award**, American Chemical Society (ACS) 257th National Meeting and Exhibition, April 2019, Orlando, FL, USA.
7. **12/2017: The Best Ph.D. Dissertation Award. First Place Prize.** Kikkawa-Yamaguchi Award 2017, Tokyo Institute of Technology, Japan.
6. **11/2015: The First Place Prize.** Honda Young-Engineers-Scientists (Y-E-S) Forum, Tokyo, Japan.
5. **12/2014: Best Presentation Award**, ACEEES Third International Educational Forum on Environment and Energy Sciences, Perth, Australia.
4. **11/2014: Best Presentation Award for Young Researchers**, 9th IWA International Symposium on Waste Management Problems in Agro-Industries, International Water Association (IWA), Kochi, Japan.
3. **10/2014 – 09/2017: Japanese Government Scholarship (MEXT).**
2. **10/2013: Certificate of Excellence - Best Presentation Award**, Tokyo Tech-KU joint seminar, Tokyo, Japan.
1. **10/2012 – 09/2014: Japanese Government Scholarship (MEXT).**

## PUBLICATIONS

**Summary:** Total Published Peer Reviewed Articles: **77**  
 First Author (Co-First Author) Articles: **29**  
 Corresponding Author Articles: **42**  
 Times cited: Over **4000** with H-index = **33**  
 Google Scholar: <https://scholar.google.com/citations?user=Ss5MnZUAAAAJ&hl=en>

### Peer Reviewed Treatment Methods and Targeted Contaminants



**Peer Reviewed Publications** (\*: Corresponding author, <sup>o</sup>: Equal contribution with first author)**2024**

77. Niaz K., McAtee D., Adhikari P., Rollefson P., **Ateia M.\***, and Abdelmoneim A. (2024) Assessing the Effects of Fluorine-Free and PFAS-Containing Firefighting Foams on Development and Behavioral Responses Using a Zebrafish-Based Platform. *Chemosphere*.
76. Dixit F., Antell E., Faber K., Zhang C., Pannu M., Plumlee M., Buren J., Doroshov A., Pomerantz W., Arnold W., Higgins C., Peaslee G., Cohen L., Sedlak D., and **Ateia M.\*** (2024) Closing PFAS Analytical Gaps: Inter-Method Evaluation of Total Organofluorine Techniques for AFFF-Impacted Water. *Journal of Hazardous Materials Letters*.
- 75.** Saha B., **Ateia M.**, Tolaymat T., Fernando S., Varghse J., Xu J., Aich N., Briest J., and Iskender S. (2024) The unique distribution pattern of PFAS in landfill organics. *Journal of Hazardous Materials*.
74. **Ateia M.\***, and Scheringer M. (2024) From “Forever Chemicals” to Fluorine-free Alternatives. *Science*. ★
73. Butzlaff A., and **Ateia M.\*** (2024) Key Engineering Design Aspects of Photo-assisted Electrochemical Reactors for Water Treatment. *Chem Catalysis*.
72. **Ateia M.\***, and Butzlaff A. (2024) Photoelectrode Materials for Photo-assisted Electrochemical Water Treatment. *Chem Catalysis*.
71. Juve J., Gonzalez X., Bai L., Xie Z., Shang Y., Saad A., Wong M., **Ateia M.**, and Wei Z. (2024) Size-selective trapping and photocatalytic degradation of PFOA in Fe-modified zeolite frameworks. *Applied Catalysis B: Environment and Energy*.
- 70.** Gaballah M., Guo J., Mahmooah A., Sobhi M., **Ateia M.**, Ghorab M., Zheng Y., and Dong R. (2024) Degradation and removal mechanisms of mixed veterinary antibiotics in swine manure during anaerobic and storage treatments: Validation and characterization. *Journal of Water Process Engineering*.
69. Guo Z., Wang T., Ichiyanagi H., **Ateia M.**, Chen G., Wang J., Fujii M., En K., Li T., Sohrin R., and Yoshimura C. (2024) Photo-Production of Excited Triplet-State of Dissolved Organic Matters in Inland Freshwater and Coastal Seawater. *Water Research*.
68. Saha B., **Ateia M.**, Fernando S., Xu J., DeSutter T., and Iskender S. (2024) PFAS occurrence and distribution in yard waste compost indicate potential volatile loss, downward migration, and transformation. *Environmental Science: Processes Impacts*.
67. **Ateia M.\***, Wei H., and Andreescu S. (2024) Sensors for Emerging Water Contaminants: Overcoming Roadblocks to Innovation. *Environmental Science & Technology*.

**2023**

66. Lin Z., Shapiro E., Gaisin A., **Ateia M.**, Helbling D., Gwinn R., Packman A., Dichtel W. (2023) Trace Organic Contaminant Removal from Municipal Wastewater by Styrenic  $\beta$ -Cyclodextrin Polymers. *Environmental Science & Technology*.
- 65.** Juve J., Reece J., Wong M., Wei Z., and **Ateia M.\*** (2023) Photocatalysts for Chemical-Free PFOA Degradation – What we know and where we go from here? *Journal of Hazardous Materials*.
64. **Ateia M.\***, Sigmund G., Bentel M., Washington J., Lai A., Merrill N., and Wang Z. (2023) Integrated Data-Driven Cross-Disciplinary Framework to Prevent Chemical Water Pollution. *One Earth*.

63. Juve J., Wang B., Wong M., **Ateia M.**, and Wei Z. (2023) Complete defluorination of per- and polyfluoroalkyl substances—dream or reality? *Current Opinion in Chemical Engineering*.
62. **Ateia M.\***, Van Buren J., Barrett W., Martin T., and Back J. (2023) Sunrise of PFAS Replacements – A Perspective on Fluorine-free Foams. *ACS Sustainable Chemistry & Engineering*.
61. **Ateia M.\***, Chiang D., Cashman M., and Acheson C. (2023) Total Oxidizable Precursor (TOP) Assay—Best Practices, Capabilities and Limitations for PFAS Site Investigation and Remediation. *Environmental Science & Technology Letters*.
- 60.** Yusuf K., Natraj A., Li K., **Ateia M.**, AlOthman Z., and Dichtel W. (2023) Inverse Gas Chromatography Demonstrates the Crystallinity-Dependent Physicochemical Properties of Two-Dimensional Covalent Organic Framework Stationary Phases. *Chemistry of Materials*.
59. Collins A., **Ateia M.**, Bhagat K., Ohno T., Perreault F., and Apul O. (2023) Microplastic-Based Leachate Formation: The Extent, Characteristics and Formation Mechanisms under UV Irradiation. *RSC Environmental Science: Water Research & Technology*.
58. Hue R., Wai M., Siev S., Ann V., **Ateia M.\***, and Yoshimura C. (2022) Dissolved silicon in a lake-floodplain system: Dynamics and its role in primary production. *Science of The Total Environment*.

## 2022

57. Verma S., Lee T., Sahle-Demessie E., **Ateia M.**, and Nadagouda M. (2022) Recent Advances on PFAS Degradation via Thermal and Nonthermal Methods. *Chemical Engineering Journal Advances*.
56. Nighojkar A., Zimmermann K., **Ateia M.**, Barbeau B., Mohseni M., Dixit F., and Kandasubramanian B. (2022) Application of neural network in metal adsorption using biomaterials (BMs): A review. *Environmental Science: Advances*.
- 55.** Natraj A., Ji W., Xin J., Castano I., Burke D., Evans A., **Ateia M.**, Hamachi L., Yusuf K., and Dichtel W. (2022) Single-Crystalline Imine-Linked Two-Dimensional Covalent Organic Frameworks Separate Benzene and Cyclohexane Efficiently. *Journal of the American Chemical Society*.
54. Trang B., Li Y., Xue X., **Ateia M.**, Houk K., Dichtel W. (2022) Low-temperature mineralization of perfluorocarboxylic acids. *Science*. ★
53. Arabkhani P., Asfaram A., Aghaei-Jazeh M., **Ateia M.\*** (2022) Plant-mediated green synthesis of nanocomposite-based multifunctional adsorbent with antibacterial activity and high removal efficiency of micropollutants from contaminated waters. *Journal of Water Process Engineering*.
52. Wang M., **Ateia M.\***, Hatano Y., and Yoshimura C. (2022) Regrowth of Escherichia coli in environmental waters after chlorine disinfection: Shifts in viability and culturability. *RSC Environmental Science: Water Research & Technology*.
51. Mousa H.M., Fahmy H., Ali G.A., Abdelhamid H.N., and **Ateia M.** (2022) Membranes for Oil/Water Separation: A Review. *Advanced Materials Interfaces*.
- 50.** Wang R., Lin Z.W., Klemes M.J., **Ateia M.**, Trang B., Wang J., Ching C., Helbling D.E., Dichtel W. R. (2022) A Tunable Porous  $\beta$ -Cyclodextrin Polymer Platform to Understand and Improve Anionic PFAS Removal. *ACS Central Science*.
49. Roy I., Evans A., Das P. J., **Ateia M.**, Ryder M. R., Jones L. O., Kazem-Rostami M., Goswami S., Beldjoudi Y., Shen D., Schatz G. C., Hupp J. T., Dichte W. R., and Stoddart J. F. (2022) Cyclophane-based two-dimensional polymer formed by an interfacial click reaction. *Cell Reports Physical Science*.
48. **Ateia M.\***, Ersan G., Gar M., Boffito DC. and Karanfil T. (2022) Microplastics Sources, Fate, Toxicity, Detection, and Interactions with Micropollutants in Aquatic Ecosystems – A Review of Reviews. *Environmental Science: Processes & Impacts*.

47. Gudda F. O., **Ateia M.**, Waigi M. G., Wang J., Gao Y. (2022) Ecological and human health risks of manure-borne steroid estrogens: A 20-year global synthesis study. *Journal Environmental Management*.
46. Wang M., **Ateia M.\***, Hatano Y., Miyanaga K., and Yoshimura C. (2022) Novel Fluorescence-Based Method for Rapid Quantification of Live Bacteria in River Water and Treated Wastewater. *Environmental Science: Advances*.

## 2021

45. **Ateia M.\***, Skala L., Yang A., Dichtel W. R. (2021) Product Analysis and Insight into the Mechanochemical Destruction of Anionic PFAS with Potassium Hydroxide. *Journal of Hazardous Materials Advances*.
44. **Ateia M.\*** (2021) Living with Eight Decades of PFAS Contamination — What is known and what is unknown. [Scientific Opinion, Non-Peer Reviewed]. *IDA Global Connections* - Summer 2021 Issue - Pages 34-37.
43. Yu W., Veld M., Bossi R., **Ateia M.\***, Tobler D., Feilberg A., Bovet N., and Johnson M. (2021) Formation of Formaldehyde and Other Byproducts by TiO<sub>2</sub> Photocatalyst Materials. *Sustainability*.
42. Yu W., Chen J., **Ateia M.\***, Cates E., and Johnson M. (2021) Do Gas Nanobubbles Enhance Aqueous Photocatalysis? Experiment and Analysis of Mechanis. *Catalysts*.
41. Arabkhani P., Javadian H., Asfaram A., and **Ateia M.\*** (2021) Decorating graphene oxide with zeolitic imidazolate framework (ZIF-8) and pseudo-boehmite offers ultra-high adsorption capacity of diclofenac in hospital effluents. *Chemosphere*.
40. Awfa D., **Ateia M.\*<sup>O</sup>**, Mendoza D., Yoshimura C. (2021) Application of QSPR Predictive Models in Water Treatment: A Critical Review. *Environmental Science & Technology Water*.

## 2020

39. Wang M., **Ateia M.\***, Awfa D., and Yoshimura C. (2020) Regrowth of Bacteria after Light-based Disinfection – What do we know and where do we go from here. *Chemosphere*.
38. **Ateia M.\***, Helbling D., and Dichtel W. (2020) Best Practices for Evaluating New Materials as Adsorbents for Water Treatment. *ACS Materials Letters*.
37. Dees J., **Ateia M\***, and Sanchez D. (2020) Microplastics and their Degradation Products in Surface Waters – A Missing Piece of the Global Carbon Cycle Puzzle. *Environmental Science & Technology Water*. (Scientific Opinion, Non-Peer Reviewed).
36. Qanbarzadeh M., Wang D., **Ateia M.**, Sahu S., Cates E. L. (2020) Impacts of Reactor Configuration, Degradation Mechanisms, and Water Matrices on PFCA Treatment Efficiency by the UV/Bi<sub>3</sub>O(OH)(PO<sub>4</sub>)<sub>2</sub> Photocatalytic Process. *Environmental Science & Technology Engineering*.
35. Thengane T., Kung K., Gupta A., **Ateia M.**, Sanchez D., et al. (2020) Oxidative torrefaction for cleaner utilization of biomass for soil amendment. *Cleaner Engineering and Technology*.
34. Arabkhani P., Asfaram A., and **Ateia M.\*** (2020) Facile Preparation of graphene oxide/sodium montmorillonite nanocomposite adsorbent for water treatment application. *Journal of Water Process Engineering*.
33. Klemes M., Sakala L., **Ateia M.**, Trang B., Helbling D., and Dichtel W. (2020) Polymerized Molecular Receptors as Adsorbents to Remove Micropollutants from Water. *Accounts of Chemical Research*.
32. Erdem C. U., **Ateia M.**, Liu C., Karanfil T. (2020) Activated carbon and organic matter characteristics impact the adsorption of DBPs precursors when chlorine is added prior to GAC contactors. *Water Research*.

31. Heu R., **Ateia M.\***, and Yoshimura C. (2020). Photocatalytic Nanofiltration Membrane using Zr-MOF/GO Nanocomposite with High-Flux and Anti-Fouling Properties. *Catalysts Journal*.
30. Heu R., **Ateia M.\***, Awfa D., Punyapalakul P., and Yoshimura C. (2020). Photocatalytic Degradation of Organic Micropollutants in Water by Zr-MOF/GO Composites. *Journal of Composites Science*.
29. **Ateia M.\***, Kanan A., Karanfil T. (2020) Microplastics Release Precursors of Chlorinated and Brominated Disinfection Byproducts in Water. *Chemosphere*.
28. **Ateia M.\***, Zheng T., Calace S., Tharayil N., Srikanth P., and Karanfil T. (2020) Sorption Behavior of Real Microplastics (MPs): Insights for Organic Micropollutants Adsorption on a Large Set of Well-characterized MPs. *Science of the Total Environment*.
27. Mousa H., Alfadhel H., **Ateia M.**, Gomaa A., Abdel-Jaber G. (2020). Polysulfone-Iron Acetate/Polyamide Nanocomposite Membrane for Oil-Water Separation. *Environmental Nanotechnology, Monitoring & Management*.
26. Awfa D., **Ateia M.\***, Fujii M., and Yoshimura C. (2020). Photocatalytic degradation of organic micropollutants: Inhibition mechanisms by different fractions of natural organic matter. *Water Research*.
25. Bravo I., Figueroa F., Swasy M., **Ateia M.**, Attia M. F., et al., (2020). Cellulose particles capture aldehyde VOC pollutants. *RSC Advances*.
24. Khalid A., Rowles L., **Ateia M.**, Minhao X., Moses I., Bello D., Karanfil T., Saleh N., and Apul O. (2020). Mesoporous Activated Carbon Shows Superior Adsorption Affinity for 11-Nor-9-Carboxy- $\Delta^9$ -Tetrahydrocannabinol in Water. *NPJ Clean Water*.
23. Attia M., Swasy S., **Ateia M.**, Whithead D., and Alexis F. (2020). Periodic mesoporous organosilica nanomaterials for rapid capture of VOCs. *RSC ChemComm*.
22. Soyluoglu M., Ersan M., **Ateia M.**, and Karanfil T (2020) Removal of Bromide from Natural Waters using a Bromide-Selective Ion Exchange Resin. *Chemosphere*.
- 2019**
21. **Ateia M.\***, Alsaiee A., Karanfil T., and Dichtel W. (2019). Efficient PFAS Removal by Amine-functionalized Sorbents: Critical Review of the Current Literature. *Environmental Science & Technology Letters*.
20. **Ateia M.\***, Gar Alalm M., Awfa D., Johnson M., Yoshimura C. (2019) Modeling the Degradation and Disinfection of Water Pollutants by Photocatalysts and Composites: A Critical Review. *Science of the Total Environment*.
19. **Ateia M.**, Arifuzzaman MD., Pellizzeri S., Attia M. F., Tharayil N., Anker J. N., and Karanfil T. (2019). Cationic Polymer for Selective Removal of GenX and Short-chain PFAS from Surface Waters and Wastewaters at ng/L Levels. *Water Research*.
18. Shimizu Y., **Ateia M.\***, Wang M., Awfa D., Yoshimura C. (2019) Disinfection Mechanism of E. Coli by CNT-TiO<sub>2</sub> Composites: Photocatalytic Inactivation vs. Physical Separation. *Chemosphere*.
17. Awfa D., **Ateia M.\***, Fujii M., and Yoshimura C. (2019) A Novel Magnetic Carbon Nanotube-TiO<sub>2</sub> Composites for Solar Light Photocatalytic Degradation of Pharmaceuticals in the Presence of Natural Organic Matter. *Journal of Water Process Engineering*.
16. **Ateia M.**, Cagri U., Ersan M., Ceccato M., and Karanfil T. (2019) Selective Removal of Bromide and Iodide from Natural Waters using a Novel AgCl-SPAC Composite at Environmentally Relevant Conditions. *Water Research*.

15. **Ateia M.**, Maroli A., Thiraly N., and Karanfil T. (2019) The Overlooked Short- and Ultrashort-Chain Poly- and Perfluorinated Substances: A Review. *Chemosphere*.

## 2018

14. **Ateia M.\***, Attia M., Maroli A., Thiraly N., Whithead D., Alexis F., and Karanfil T. (2018) Rapid Removal of Poly- and Perfluorinated Alkyl Substances by Polyethylenimine-functionalized Cellulose Microcrystals at Environmentally Relevant Conditions. *Environmental Science & Technology Letters*.
13. Sahu, S.P., Qanbarzadeh, M., **Ateia, M.**, Torkzadeh, H., Maroli, A.S. and Cates, E.L. (2018). Rapid Degradation and Mineralization of Perfluorooctanoic Acid by a New Petitjeanite  $\text{Bi}_3\text{O}(\text{OH})(\text{PO}_4)_2$  Microparticle Ultraviolet Photocatalyst. *Environmental Science & Technology Letters*, 5(8), pp.533-538.
12. Awfa, D., **Ateia, M.\*<sup>o</sup>**, Fujii, M., Johnson, M. S., Yoshimura, C. (2018). Photodegradation of Pharmaceuticals and Personal Care Products in Water Treatment Using Carbonaceous-TiO<sub>2</sub> Composites: A Critical Review of Recent Literature. *Water Research*.
11. Shimizu, Y., **Ateia, M.\*<sup>o</sup>**, & Yoshimura, C. (2018). Natural organic matter undergoes different molecular sieving by adsorption on activated carbon and carbon nanotubes. *Chemosphere*, 203, pp.345-352.
10. **Ateia M.\***, Ceccato M., Ataman E., Akin B., Yoshimura C., Johnson M. S. (2018) Ozone-assisted Regeneration of Magnetic Carbon Nanotubes to Remove Organic Pollutants from Aqueous Solutions. *Chemical Engineering Journal*, 335, 384-391.

## 2017

9. **Ateia M.\***, Koch C., Jelavic S., Quinson J., Hirt A., Yoshimura C., Johnson M. S. (2017) Magnetic Carbon Nanotubes: Facile, Green and Scalable Preparation for Use in Water Treatment. *PLOS ONE*.
8. **Ateia M.\***, Apul O., Shimizu Y., Muflihah A., Yoshimura C., and Karanfil T. (2017) Elucidating Adsorptive Fractions of Natural Organic Matter on Carbon Nanotubes. *Environmental Science & Technology*.
7. **Ateia M.**, Ran J., Fujii M., & Yoshimura C. (2017) The Relationship between Molecular Composition and Fluorescence Properties of Humic Substances. *Int. J. Environ. Sci. Technol.* doi:10.3390/w8100461
6. Nasr M., **Ateia M.**, & Hassan K. (2017). Modeling the Effects of Operational Parameters on Algae Growth. In *Algal Biofuels* (pp. 127-139). Springer International Publishing. DOI: 10.1007/978-3-319-51010-1\_7

## 2016

5. **Ateia M.\***, Nasr, M.; Ikeda, A.; Okada, H.; Fujii, M.; Natsuike, M.; Yoshimura, C. (2016) Nonlinear Relationship of Near-bed Velocity and Growth of Riverbed Periphyton. *Water*, 8: 461.
4. **Ateia M.\***, Yoshimura C., and Nasr M. (2016) In-situ Biological Water Treatment Technologies for Environmental Remediation: A Review. *J Bioremediation & Biodegradation* 7: 348.

## 2015

3. **Ateia M.\***, Nasr, M., Yoshimura, C., & Fujii, M. (2015). Organic matter removal from saline agricultural drainage wastewater using a moving bed biofilm reactor. *Water Science & Technology*.
2. Nasr, M., **Ateia M.**, & Hassan, K. (2015). Artificial intelligence for greywater treatment using electrocoagulation process. *Separation Science and Technology*.

## 2014

1. Al-Amoud, A., Mattar, M., & **Ateia M.** (2014). Impact of water temperature and structural parameters on the hydraulic labyrinth-channel emitter performance. Spanish Journal of Agricultural Research.

## RESEARCH INTERESTS AND EXPERIENCES

### • Research Interests:

#### Advanced Materials for Environmental Remediation:

- Development of next-generation adsorbents (metal-impregnated carbonaceous materials, graphene-based nanomaterials, covalent-organic frameworks (COFs), metal-organic frameworks (MOFs), new polymeric hybrids) for physicochemical water treatment applications.
- Development of new catalysts for the efficient degradation of legacy and emerging water contaminants.
- Implications of new 2-D nanomaterials (graphene and MXenes) for the disinfection of microbes in water.
- Development of new sensors for emerging water contaminants.

#### Detection and Removal of Emerging Water Contaminants

- Assessment of conventional treatment technologies and the development of practical treatment approaches for the removal/degradation of:
  - o *Per- and Polyfluoroalkyl Substances (PFAS)*.
  - o *Pharmaceuticals and Illicit drugs*.
  - o *Nano- and Microplastics*.

#### Assessment of PFAS-free Alternatives

- Assessment of environmental impacts of PFAS-free alternatives in:
  - o *Fluorine-free Foams (F3)*.
  - o *Consumer Products*.

### • Research Experiences:

**Research Associate.** Department of Chemistry, Northwestern University, IL (11/2019 – 07/2021).

CycloPure Company, IL (11/2019 – 10/2020).

- Development of **reactive electrochemical membranes** using metal carbides and metal oxides for the degradation of micropollutants.
- Development of **new covalent organic frameworks (COFs) composites** for the selective adsorption of U(VI) from seawater.
- Development **tandem treatment trains** for the degradation of PFAS in regeneration solutions.
- Elucidating the interactions between **real microplastics and toxic chemicals** in water environments.

**Post-Doctoral Fellow.** Environmental Engineering and Earth Sciences, Clemson University, SC (11/2017 – 10/2019).

- Development of **novel polymeric materials** for the efficient removal of PFAS.
- Development of **new catalysts** for the degradation of micropollutants (i.e., PFAS and PPCPs).
- Development **silver-based carbonaceous composites** for the selective removal of bromide and iodide.
- Elucidating the interactions between **real microplastics and toxic chemicals** in water environments.
- Applications of **ion exchange resins for wastewater treatment** and disinfection byproducts control.
- Removal of **illicit drugs** from water using carbonaceous adsorbents.
- Leading a **two-year project to monitor the water quality** for a local water utility in SC (monthly sampling from five lakes and one river).



- Writing **grant proposals for national and international funding agencies**; including Water Research Foundation, US EPA, National Science Foundation (NSF), Environmental Research & Education Foundation (EREF), JSPS International Collaboration Grant, Saudi Arabia International Collaboration Grant, US-AID PEER (Egypt), US-AID PEER (Iraq), NPRP (Qatar).
- Initiating, leading and coordinating several research collaborations **within the department** (with Dr. Ezra Cates, Dr. Sudeep Papat, and Dr. Brian Powell), **with other departments** (Dr. Nishanth Tharail, Plant and Environmental Sciences Department and Dr. Daniel Whitehead, Department of Chemistry), and **with other national and international universities** (Dr. Onur Apul, UMass Lowell; Dr. Chihiro Yoshimura, Tokyo Institute of Technology; Dr. Matthew Johnson, University of Copenhagen; and Dr. Michael Naguib, Tulane University; Dr. Marcel Ceccato, Aarhus University).

**Graduate Research Assistant.** Environmental Engineering, Tokyo Institute of Technology, Tokyo (10/2012 – 09/2017).

- Development of a novel and facile method to prepare magnetic carbon nanotubes (MCNT).
- Adsorption of micropollutants (i.e., pesticides) and natural organic matter on CNT and activated carbon.
- Development of an efficient regeneration method for recycling spent carbonaceous adsorbents.
- Design and test moving bed biofilm reactor (MBBR) for reuse of agricultural wastewater.

## SERVICES AND PROFESSIONAL ACTIVITIES

**Advisory Board Member**, ACS Chemical & Engineering News magazine (06/2024 – Current).

**Technical Committee Member**, DoD's SERDP-ESTCP program (01/2023 – Current).

**Organizer & Host**, Innovation in Environmental Science Seminar (11/2021 – Current).

**Mentor**, The Rural Water Supply Network (RWSN), Supported by *Swiss Agency for Development Cooperation (SDC)* and *The World Bank* (02/2020 – 07/2021).

**President**, Clemson University Postdoc Association (CUPDA) (02/2019 – 10/2019).

**Vice President**, Clemson University Postdoc Association (CUPDA) (08/2018 – 02/2019).

**Co-Founder**, BENAA Association, NGO based in Egypt/Switzerland [bena-global.org] (10/2015 – 07/2021).

**Discussion Leader**, 'The Graduate School Experience: What to Expect' Workshop, Spring ACS National Meeting, Orlando, FL (04/2019).

**Trainer**, 'Tips for Effective Communications & Collaborations' Workshop, GRAD360, Clemson University (02/2019).

**Judge**, '6<sup>th</sup> Annual Summer Undergraduate Research Symposium', Clemson University (06/2018).

**Trainer**, 'Life After Ph.D.' Workshop, GRAD360 Program, Clemson University (03/2018).

**Speaker: TED<sup>x</sup>Titech.** Title: (Pause .. Rethink), Tokyo, Japan (01/2017).

**Professional Memberships:** Holding memberships of:

- American Chemical Society (Environmental Chemistry Division).
- Association of Environmental Engineering and Science Professors (AEESP).
- American Association for the Advancement of Science (AAAS).

**Reviewer for** *Water Research, Environmental Science & Technology, ES&T Letters, Advanced Functional Materials, ACS Applied NanoMaterials, Chemosphere, Science of the Total Environment, Environmental Chemistry Letters, Journal of Hazardous Materials, Water Process Engineering, Applied Water Science, and Journal of Nanostructure in Chemistry.*