

# 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] – Office of Research and Development  
Center for Environmental Solutions & Emergency Response (CESER)  
US Environmental Protection Agency, OH, 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

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

## PUBLICATIONS

**Summary:** Total Published Peer Reviewed Articles: **58**

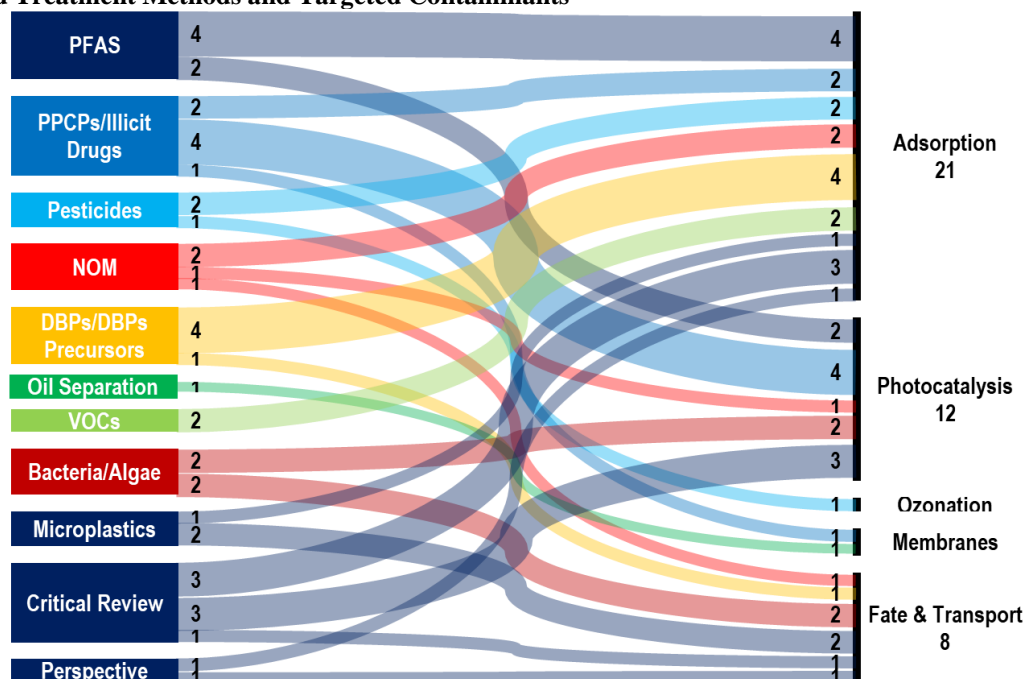
First Author (Co-First Author) Articles: **23**

Corresponding Author Articles: **31**

Times cited: Over **1850** with H-index = **23**

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)**2022**

58. 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*.
57. Collins A., **Ateia M.**, Bhagat K., Ohno T., Perreault F., and Apul O. (2022) Microplastic-Based Leachate Formation: The Extent, Characteristics and Formation Mechanisms under UV Irradiation. *RSC Environmental Science: Water Research & Technology*.
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.\***, Alsbaiee 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 Bi<sub>3</sub>O(OH)(PO<sub>4</sub>)<sub>2</sub> 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*.

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## Oral Presentations / Invited Talks

1. **Ateia M.** Efficient PFAS Removal by Amine-functionalized Sorbents: Promises & Challenges. 9th De Nora Symposium, Nov. 11, 2020. [Invited Talk★]
2. **Ateia M.** Bridging the Gap between Water Chemistry and Materials Chemistry. Swiss Federal Institute of Aquatic Science and Technology (Eawag). Aug. 25, 2020. [Invited Talk★]

3. **Ateia M.** Emerging Water Pollutants Need Innovative & Yet Practical Solutions. Department of Chemistry, Eastern Illinois University, Feb. 2020. [Invited Talk★]
4. **Ateia M.** Efficient PFAS Removal by Amine-functionalized Sorbents: Promises & Challenges. Environmental Engineering and Sciences, Northwestern University, Jan. 2020. [Invited Talk★]
5. Kananizadeh N., Lindsay S., Childress A., **Ateia M.**, Naguib M., Rao A., Popat S. Carbon-Based Air-Cathodes for Hydrogen Peroxide Production in Microbial Fuel Cells. 236<sup>th</sup> ECS Meeting, Physical and Analytical Electrochemistry, Electrocatalysis, and Photoelectrochemistry, October 13-17, 2019, Atlanta, GA, USA.
6. **Ateia M.**, Attia M., Thiraly N., Whithead D., Alexis F., and Karanfil T. Near-instant removal of poly- and perfluorinated alkyl substances by polyethylenimine-functionalized cellulose microcrystals. American Chemical Society (ACS) 257<sup>th</sup> National Meeting and Exhibition, April 2019, Orlando, FL, USA. [Awarded ★]
7. Cates E., Qanbardazeh M., Wang D., **Ateia M.**, Torkzadeh H. Degradation of PFAS using the BOHP/UV process: Photocatalysis mechanisms and pilot study results. American Chemical Society (ACS) 257<sup>th</sup> National Meeting and Exhibition, April 2019, Orlando, FL, USA.
8. Soyluoglu M., **Ateia M.**, Ersan M., Karanfil T. Removal of Bromide from Natural Waters: Bromide-Selective vs. Conventional Ion Exchange Resins. South Carolina Environmental Conference (SCEC), March 2019, Myrtle Beach, SC.
9. Khalid, A., **Ateia, M.**, Karanfil, T., Pagsuyoin, S., Bello, D., Apul, O. Adsorption of  $\Delta^9$ -tetrahydrocannabinol by Carbon-based Adsorbents. American Chemical Society (ACS) 256<sup>th</sup> National Meeting and Exhibition, August 2018, Boston, MA.
10. **Ateia M.**, Johnson M S., and Yoshimura C. Ethylene Glycol Improve the Performance of Oxidized Carbon Nanotubes to Remove Organic Pollutants from Aqueous Solutions. The Fifth international education forum on environment and energy science, San Diego, USA. Dec. 2016.
11. **Ateia M.**, Johnson M S., and Yoshimura C. Magnetic Carbon Nanotubes for Organic Dye Removal from Aqueous Solution. The Fourth international education forum on environment and energy science, Hawaii, USA. Dec. 2015.
12. Saavedra O., Yoshimura C., Negm A., **Ateia M.**, et al. A Platform for Integrated Water Resources Management for Mega Deltas Under Climate Change JSPS Mega Delta Project. International Water Technology Conference (IWTC), Sharm El-Sheikh, Egypt, 12-14 March 2015.
13. **Ateia M.** & C. Yoshimura. In-situ Biological Water Treatment Technologies for Environmental Remediation: A Review. International Water Technology Conference (IWTC), Sharm El-Sheikh, Egypt, 12-14 March 2015.
14. **Ateia M.**, C. Yoshimura and M. Fujii. Organic Matter Removal from Saline Agricultural Drainage Water by Moving Bed Biofilm Reactor. The Third international education forum on environment and energy science, Perth, Australia. Dec. 2014. [Awarded ★]
15. **Ateia M.**, M. Nasr C. Yoshimura, and M. Fujii. Effect of Salinity on Organic Matter Removal from Polluted Agriculture Drainage Water by Moving Bed Biofilm Reactor. 9<sup>th</sup> IWA International Symposium on Waste Management Problems in Agro-Industries, Kochi, Japan. 24-26 November 2014. [Awarded ★]
16. **Ateia M.**, P. Sui, C. Yoshimura and M. Fujii. Floating Plastic Media for Removal of Organic Pollutants In Agricultural Drainage Water. The second international education forum on environment and energy science, California, USA. Dec. 2013.
17. C. Yoshimura and **Ateia M.** Development of In-situ Wastewater Treatment Systems and its Application to Agricultural Drainage Water. Project meeting of JSPS Core-to-Core Program (Mega Delta Project), Alexandria, Egypt. Nov. 2013.
18. **Ateia M.**, P. Sui, C. Yoshimura and M. Fujii. Floating Plastic Media for Removal of Organic Pollutants in Agricultural Drainage Water. International Water Technology Conference (IWTC), Istanbul, Turkey. Nov. 2013.
19. **Ateia M.**, P. Sui, C. Yoshimura and M. Fujii. Application of Suspended Bed Biofilm Reactor to Remove Organic Matter

from Agricultural Drainage Water. Tokyo Tech-KU joint seminar, Tokyo, Japan. Oct. **2013**. [*Awarded* ★]

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### Poster Presentations

1. **Ateia M.**, Yoshimura C., and Johnson M S. Ozone Recycling of Spent Carbon Nanotubes for Water Treatment Applications. CARBONHAGEN, Copenhagen, Denmark, 17-18 August **2016**.
2. **Ateia M.**, Johnson M S., and Yoshimura C. Magnetic Carbon Nanotubes: Regeneration Methods and Perspective for Removal of Chemical Substances in Wastewater. Honda Y-E-S Forum, Tokyo, Japan, 18 November **2015**. [*Awarded* ★]
3. **Ateia M.**, O. Saavedra, C. Yoshimura, K. Nadaoka and S. Kanae. Integrated Water Resources and Environmental Management for Asian and African Mega Deltas Under Climate Change Effects. GEOSS Joint Asia-Africa Water Cycle Symposium, The University of Tokyo, Tokyo, Japan. Nov. **2013**.
4. **Ateia M.**, P. Sui, C. Yoshimura and M. Fujii. A Packed-Bed Reactor For Removal of Organic Pollutants in Agricultural Drainage Water. Joint Seminar of JSPS Core-to-Core Program (Mega Delta Project), Ho Chi Minh City, Vietnam. Aug. **2013**.

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### 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*.

#### • Research Experiences:

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

CycloPure Company, IL (11/2019 – Present).

- 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 Popat, 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.

## TEACHING INTERESTS AND EXPERIENCES

- **Teaching Interests:** Environmental Engineering Processes, Water and Wastewater Quality, Physicochemical Processes in Water and Wastewater Treatment, Environmental Engineering Design, Water Resources Engineering, Environmental Nanotechnology: Applications and Implications of Nano Biomimicry in Environmental Engineering

- **Teaching Experiences:**

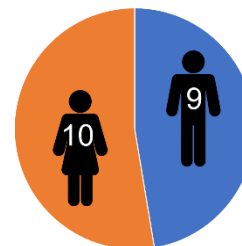
**Mentor of total 19 graduate students:** Mr. Cagri Utku Erdem, Ms. Meryem Soyluoglu, Mr. Esat Ariturk, Ms. Stefania Calace [Ref.: Dr. Tanju Karanfil], Ms. Paige Taber [Ref.: Dr. Sudeep Popat], Mr. Mojtaba Qanbarzadeh [Ref.: Dr. Ezra Cates], Mr. Dion Awfa, Ms. Rina Heu, Mr. Yuta Shimiza, Ms. Sayako Shoda, Ms. Astri Muflihah, Ms. Dilini Kodikara, and Ms. Manna Wang [Ref.: Dr. Yoshimura Chihiro], Ms. Brittany Trang, Mr. Zhi Lin [Ref.: Dr. Willaim Dichtel].

**Clemson University,** Clemson, USA.

- Completed ESED-8210: ‘*Teaching Undergraduate Science*’ [Ref.: Dr. Cindy Lee].
- **Guest Lecturer**-EES 8030: ‘*Physicochemical Water Treatment Systems*’ [Ref.: Dr. Ezra Cates].
- **Guest Lecturer**-EEES Seminar: [Ref.: Dr. Sudeep Popat].

**Tokyo Institute of Technology,** Tokyo, Japan.

### Mentored Students



- **Guest Lecturer** ‘*Aquatic Environmental Science*’: [Ref.: Dr. Yoshimura Chihiro].
- **Guest Lecturer** ‘*Water Quality Modelling*’: [Ref.: Dr. Yoshimura Chihiro].
- **Teaching Assistant and Guest Lecturer** ‘*Environmental Statistics*’: [Ref.: Dr. Yoshimura Chihiro].

University of Copenhagen, Copenhagen, Denmark.

- **Guest Lecturer** ‘*Environmental Chemistry*’: [Ref.: Dr. Matthew Johnson].

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## SERVICES AND PROFESSIONAL ACTIVITIES

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**Organizer & Host**, EPA Meets the World 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).
- National Postdoc Association (NPA).

**Guest Editor for** *Catalysts Journal* [Special Issue "Innovative and Practical Trends in Photocatalytic Degradation of Environmental Pollutants"]

**Journal 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.*