Hamidreza Sharifan

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POST-DOCTORAL EXPERIENCES

Feb. 2021 — University of California Davis, Air Quality Research Center, CA, USA

Post-Doctoral Research in driving the methane recovery processes in the pre and post-installation of anaerobic digester for the green waste, wastewater sludge, and dairy waste.

- Biomethane recovery
- Ammonia, fatty acids, phosphorus
- Biomethane, N_2O, and VOC emission

Nov. 2019 -Jan.2021 — Colorado State University, Department of Civil and Environmental Engineering, USA

Post-Doctoral Research in Source Tracking and Environmental Fate of Per and Polyfluoroalkyl Substances (PFAS) from Groundwater (**SERDP:** Department of Defense).

- Big data analysis by Python and R-Studio
- Analyzing water sample data (FT-ICR-MS) by Ultra Mass Explorer
- Identifying parents compounds and by-products

May.2019-Aug 2019 — R&D of Agricultural solution of BASF Chemical company

Visiting scholar at BASF Chemical Company, Germany

- Identified the secondary metabolites
- Big data screening and processing by Python

EDUCATION

Oct. 2019 — Texas A&M University, College Station, TX, USA
Doctor of Philosophy in Biological and Agricultural Engineering
Dissertation Title: Environmental fate of metallic oxide nanoparticles (ZnO &CeO_2) and heavy metal(loid)s in agricultural soil.

Dec.2015 — Texas Tech University, Lubbock, TX, USA
Master's Degree in Civil and Environmental Engineering
Thesis: Environmental fate of UV filters in different environmental compartments.

Jul.2015 — **Graduate certificate** in **Advanced Energy System Engineering,** Old Dominion University, VA, USA

Apr. 2013 — University of Stuttgart, Stuttgart, Germany
Master's Degree in Environmental Process Engineering
Thesis: Solute transfer mechanisms of organic contaminants in Polar Organic Chemical Integrative Sampler (POCIS).

Sep. 2009 — **Bachelor of Science in Environmental Science and Engineering**, University of Birjand
Thesis: Environmental fate of heavy metals in gray mangrove (*Avicennia marina*) ecosystem

PUBLICATIONS *corresponding author (for the full list, please see my Google scholar)

1. 2021, **H Sharifan**, M Bagheri, D Wang, J Burken, C Higgins, Y Liang, J Liu, C Schefer. J Blotevogel., fate and transport of per- and polyfluoroalkyl substances (PFASs) in the vadose zone, Science of Total Environment,. 10.1016/j.scitotenv.2021.145427
2. 2020**, H Sharifan*,** Mechanistic Insight on Transfer Rate of the Polar Organic Compounds through the Polyethersulfone Membrane, Environmental Monitoring and Assessment ,. 10.1007/s10661-020-08309-y
3. 2020, **H Sharifan*,** Alarming the Impacts of the Organic and Inorganic UV blockers on Endangered Coral's Species, A Scientific Concern for Coral Protection, Sustainable Futures,. 10.1016/j.sftr.2020.100017
4. 2020, **H Sharifan,** X. Ma, J. Moore,. Zinc oxide (ZnO) nanoparticles elevated iron and copper contents and mitigated the bioavailability of lead and cadmium in different leafy greens,. **Ecotoxicology and Environmental Safety**,. 10.1016/j.ecoenv.2020.110177
5. 2020, X Ma, **H Sharifan**, F Dou, W Sun., Simultaneous Reduction of Arsenic (As) and Cadmium (Cd) Accumulation in Rice (Oryza sativa L.) by Zinc Oxide Nanoparticles**, Chemical Engineering**,. 10.1016/j.cej.2019.123802

6. 2019, **H Sharifan**, X Ma, j Moore, M Ruzlan, C Evans**.,** Zinc oxide nanoparticles alleviated the bioavailability of cadmium and lead and changed the uptake of iron in hydroponically grown lettuce (*Lactuca sativa L. var. Longifolia*), **ACS Sustainable Chemistry & Engineering**. 10.1021/acssuschemeng.9b03531
7. 2019, **H Sharifan**, X Wang, X Ma., Impact of nanoparticle surface charge and phosphate on the uptake of coexisting cerium oxide nanoparticles and cadmium by soybean (*Glycine max. (L.) Merr.*), International Journal of Phytoremediation,. 10.1080/15226514.2019.1658713
8. 2019, L Rossi, L N Fedenia; **H Sharifan**, X Ma, L Lombardini. Effects of foliar application of zinc sulfate and zinc nanoparticles in coffee (Coffea arabica L.) plants, **Plant Physiology and Biochemistry**,. 10.1016/J.PLAPHY.2018.12.005
9. 2018, **H Sharifan**, X Wang, G Binglin, X Ma., Investigation on the Modification of Physicochemical Properties of Cerium Oxide Nanoparticles through Adsorption of Cd and As(III)/As(V), **ACS Sustainable Chemistry & Engineering,**. 10.1021/acssuschemeng.8b03355
10. 2018, X.Wang, W.Sun, S. Zhang, **H. Sharifan**, X. Ma, Elucidating the Effects of Cerium Oxide Nanoparticles and Zinc Oxide Nanoparticles on Arsenic Uptake and Speciation in Rice (*Oryza sativa*) in a Hydroponic System, **ACS Environmental Science & Technology**,. 0.1021/acs.est.8b01664
11. 2018, **L Rossi, H Sharifan,** W Zhang, S Arthur P, X Ma., Mutual effects and in-planta speciation of co-existing cerium oxide nanoparticles and cadmium in hydroponically grown soybean (*Glycine max (L.) Merr.*), **Environmental Science: Nano 2018**,. 10.1039/C7EN00931C
12. 2017, **H Sharifan*.,** Commentary on Characteristics of cadmium uptake and membrane transport in roots of intact wheat (Triticum aestivum L.) seedlings. **Environmental Pollution**,. 10.1016/j.envpol.2017.06.018
13. 2017, **H Sharifan***, X Ma., Potential photochemical interaction of UV Filter Molecules with the multi-chlorinated structure of Prymnesins in a Harmful Algal Bloom event**,** Mini-Reviews in Organic Chemistry,. 10.2174/1570193X14666170518124658
14. 2017, **H Sharifan***, A Morse, H Madsen., High Performance in Power Generation by Pressure-Retarded Osmosis (PRO) from Hyper-Salinity Gradient: Case Study of Hypersaline Lake of Urmia, Iran, **Desalination and Water Treatment**,. 10.5004/dwt.2017.20555
15. 2016, **H Sharifan***, A Morse, D Klein., UV Filters, an Environmental Threat for the Gulf of Mexico; Case Study of Texas Coastal Zones, Oceaologia,. 10.1016/j.oceano.2016.07.002
16. 2016, **H Sharifan***, A Morse, D Klein., UV Filters Interaction in the Chlorinated Swimming Pool, a new challenge for urbanization, a need for community-scale investigations, **Environmental Research**,. 10.1016/j.envres.2016.04.002

UNDER REVIEW

17. 2021, **H Sharifan**, M Bagheri, j Moore., Nanofortification and a Neural Networks bio-projection of microbial growth on tomato (*Solanum Lycopersicum*), Science of Total Environment (Ready to submit)
18. 2021, A Doria-Manzur, H Sharifan,L Tejeda-Benitez., Zinc oxide nanoparticles mitigated the high contamination of nickel in Sorghum bicolor, Environmental Pollution (under review)
19. 2021, D Sanaeia, M Massoudinejada, M Alipourb, M Sarmadic, H Abdolmalekid, **H Sharifan***., Decidedly efficient and durable oxygen reduction reaction catalyst synthesized from Sr/Fe/Co/Mn mixed-metal–organic: toward a sustainable application of fuel cell cathode, Submission to Sustainable Energy & Fuels (under review)
20. 2021, A.Zarinkoob, S. E. Bahabadi, A. Rahdar, P. Hasanein, **H. Sharifan***, Ce-Mn ferrite nanocomposite promoted the photosynthesis, fortification of total yield and elongation of wheat (*Triticum aestivum L.*), Environmental Science and Pollution Research (Minor Revision)

GRANTS and FELLOWSHIPS

2019 German Academic Exchange Service (DAAD), Scholarship Award of RISE Professional ($16k)
Research Area: Characterizing and calibrating of LC-SPE-NMR for analyzing the biological samples of animal and plant metabolites at BASF Chemical Company, Ludwigshafen, Germany.

2019 National Science Foundation (NSF)-PIRE (#1545837 P), Awarded the Extended Proposal ($15k) Research Area: Sustainable agriculture under risk of a contaminated coastal flood using the nanotechnology a collaboration between the Delft University (Netherlands) and Texas A &M University (USA) Co-PI: Hamidreza Sharifan.

2017 Travel Grants: National Institute of Health (NIH), National Science Foundation (NSF) ($4000)
To present at the: 14th International Phytotechnologies Conference, Montreal, Canada

1st Pan American Congress of Nanotechnology, Guaruja, Brazil
16th International Phytotechnologies Conference, Changsha, China

2017 **Rollins Family Fellowship and Harold J. "Bill" Haynes Fellowship, Texas A &M University($6000)**
In recognition of excellent performance and dedication in research.

2016 **Oklahoma State University, Travel Grant**, funded by Buchanan Family Trust**($500)**
To attend the student water conference at Oklahoma State University.

2016 **Small Research Grant for Graduate Students at Texas Tech University ($500)**
To provide the supplemental material for the project of UV filters interaction with the chlorinated water

2015 **Presidential Fellowship from Texas Tech University ($60k)**
To complete two years of graduate studies

SELECTED PRESENTATIONS

2019, Sharifan., Moore, Ma, ***Interaction of leafy vegetable romaine lettuce (Lactuca sativa L. var. Longifolia) with coexisting of ZnO nanoparticles and divalent heavy metals (Cd and Pb),*** American Chemical Society, San Diego, CA, USA

2019, Sharifan., Moore, Ma, ***Effects of zinc oxide nanoparticles on the bioavailability of co-contaminant cadmium and lead and the iron content in spinach (Spinaciae oleracea),*** 16th International Phytotechnologies Conference, China.

2017, Sharifan., Ma, ***mutual effects of cerium oxide nanoparticles and cadmium on their uptake and accumulation by soybeans in a hydroponic system,*** 14th International Phytotechnologies Conference, Canada.

2017, Sharifan., Mal, ***Characterizing the molecular mechanisms for the uptake of cerium oxide nanoparticles by soybean (Glycine max. (L.) Merr.),*** in Pan American Congress of Nanotechnology (PanNano-2017), Brazil.

2016, Sharifan., Morse, ***Solute Transfer behavior of Polar Organic Chemical Compounds through Polyethersulfone Membrane (PES) in Passive Sampling Device***, Annual Student Water Conference, Stillwater campus of Oklahoma State University. USA

2016, Sharifan., Morse, ***Transfer Rate of Water Contaminants through a Polyethersulfone (PES) Membrane***, Texas Water Conference, Fort Worth, Texas, USA

AWARDS

2019 **Appreciation Award for serving as Judge for Annual Departmental Capstone** Event for Undergraduate Students of the Department of Biological and Agricultural Engineering, Texas A & M University, College Station, Texas.

2018 **Peer Review Awards by Publon supported by Web of Science Group**
Top 1% in the Field Environment and Ecology

2018 **Top Reviewer for the Journal of Science of Total Environment**

2017 **Top Reviewer for the Water Environment Federation, Journal of Water Environment Research**

INVITED TALKS

Feb.2020, **Title: Application of Nanotechnology in Food Safety,**
Department of Civil and Environmental Engineering, Colorado State University, USA

June.2019, **Title: Ph.D., A Decision for Future, Challenges, and Successes,**
Department of Environment and Process Engineering, WASTE Program, Stuttgart, Germany

July.2019, **Title: Interaction of Nanoparticles with Dietary Plants, A Food Safety Perspective**
Rise Professional-DAAD Program (German Academic Exchange Service), Heidelberg, Germany

TEACHING EXPERIENCE

Instructed the Lab Course of the Food Process Engineering(AGSM 315)
Department of Biological and Agricultural Engineering, Texas A&M University, College Station, TX.
Major teaching modules: Elementary mechanics, physical and thermal properties of food and processing materials, heat transfer, mass and energy balances, psychometrics (properties of air), insulation.
List of Supervised Students
2020: Shikhadri Mahanta, ***MSc student*** at the Department of Biological and Agricultural Engineering, Texas A&M
-Seeds germination, application of nanoparticle in soil, solute preparation
2019: Fahad Asiri, ***PhD student*** at the Zackary Department of Civil Engineering, Texas A&M University
-Scientific writing, underlying mechanism in biodegradation, NOx cycle, ICP MS analysis, Digestion procedure
2018: Xiaoxuan Wang, ***PhD student*** at the Zackary Department of Civil Engineering, Texas A&M University
-Scientific writing, underlying mechanism in phytoremediation, ICP MS analysis, Digestion procedure
2019: Mohammad Ruzlan Habib, ***PhD student*** at the Department of Biological and Agricultural Engineering, Texas A&M

-Plant tissue digestion and ICP techniques

2018: Alonso Doria Manzur, ***Intern undergraduate*** at Texas A&M University from Universidad de Cartagena, Colombia
-Adsorption techniques, phytoremediation procedure, DLS and ICP analysis, data interpretation

2018: Francis Toscano, ***Intern undergraduate*** at Texas A&M University from Universidad de Cartagena, Colombia
-Adsorption techniques, phytoremediation procedure, DLS and ICP analysis, data interpretation

Sep. 2018-Dec.2018 **Lab Instructor and Mentor for Undergraduate International Exchange students, Texas A & M University, College Station, TX.**

Taught the adsorption principles and applicable isotherms
Evaluated and graded mid-term Exams
Evaluated undergraduate homework and communicated the challenging issues
Explained and trained the analytical approach for nanoparticles hydrodynamic size distribution
Elucidate the mechanism of protein synthesis inhibitors to students
Assigned tasks and trained the acid digestions of organic tissue and sample preparation for ICP-MS analysis

Sep. 2016-Oct.2016 **Certificate in Teaching Techniques (ASCE). Texas Tech University, Lubbock, Texas. Understanding teaching techniques through critical reflection and application. Three Days Workshops attended:**
(i) Introduction to Teaching; (ii) Learning Styles; (iii) Classroom Assessment Techniques; (iv) Effective Teaching with Technology; (v) Classroom Management; (vi) Writing Learning Outcomes; (vii) Establishing Credibility and Authority in the Classroom; (viii) Evaluation and Grading.

WORK AND RESEARCH EXPERIENCE

Nov. 2019 -up to date **Post-Doctoral Researcher at Department of Civil and Environmental Engineering, Colorado State University**

- Processing Big data by Python and R-Studio
- Developing the codes for data analysis
- Analyzing FT-ICR-MS data by Ultra Mass Explorer
- Identifying parents compounds and by-products
- Field sampling

Jan. 2017-Dec2019 **Research Assistant at Nanotechnology Lab, Department of Biological and Agricultural Engineering, Texas A&M University, College Station, TX.**
Measured physiological changes of the crop cultivars under environmental stresses
Characterized different metallic oxide nanoparticle by DLS, TEM, and XPS
Investigated the adsorption of the organic/ inorganic pollutant by DLS, TEM &ICP-MS
Analyzed the elemental composition of the growth media and living tissue by ICP-MS
Cultivated the bacterial communities and characterized their responses

Mar. 2012-Mar.2013 **Research Assistant-Intern at Alfred Wegener Institute for Polar and Marine Researches, Germany**
Collected, organized, and analyzed DNA samples by qPCR.
Performed DNA extraction procedures and used appropriate DNA testing kits.
Prepared and maintained computerized records related to biotoxins extraction.
Managed lab operations and team activities, as needed.
Trained and supervised all assigned interns and subordinate staff.

Nov. 2010 Jan.2014 **Research Assistant at Stuttgart University**

- **ISWA: Institute for Sanitary Engineering, Water Quality and Solid Waste Management**

Extracted different biotoxins from sampled algae, prepared samples for GC-MS and HPLC analysis
Analyzed data and identified different types of biotoxins based on molecular spectrum
Calibrated the GC-MS and quantified multiple pharmaceuticals and pesticides from water samples
Characterized performance of the PES membrane in POCIS (passive sampling)

PROFESSIONAL DEVELOPMENT

Executive Committee of Academy for Future Faculties at Texas A&M University
Certified Teaching Skills from the Center for the Integration of Research, Teaching, and Learning (NSF)
Editor for the Journal of Data in Brief (Elsevier)
Editor for the Journal of Material Sciences and Applications
Science committee member for Sustainable Energy-Water-Environment Nexus In Desert Climate Conference