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EDUCATIONAL BACKGROUND

Undergraduate — Bachelor of Engineering in Environmental Engineering
Henan Normal University Henan, Xinxiang, China
June 2016

Graduate — Master of Science in Civil Engineering
University of Louisiana at Lafayette Lafayette, Louisiana, 70504 United States
December 2021

Doctor of Philosophy in Systems Engineering with concentration in Civil Engineering
University of Louisiana at Lafayette Lafayette, Louisiana, 70504 United States
August, 2023

Training — Designing Leaders Program Spring 2022 College of Engineering
University of Louisiana at Lafayette Lafayette, Louisiana, USA
January to April 2022

AWARDS and SCHOLARSHIPS

University of Louisiana at Lafayette Dissertation Completion Fellowship Recipient
University of Louisiana at Lafayette Spring 2023

Engineering and Technology Week 2022 Graduate Poster Competition Finalist College of Engineering
University of Louisiana at Lafayette March 30, 2022

WORK EXPERIENCE

UNIVERSITY OF LOUISIANA AT LAFAYETTE – DEPARTMENT OF CIVIL ENGINEERING
Graduate Teaching Assistant *(January 2019 – December 2022)*

UNIVERSITY OF LOUISIANA AT LAFAYETTE – ENERGY INSTITUTE OF LOUISIANA
Graduate Research Assistant *(June 1, 2021 – July 31, 2021)*
Project Title: Production of Fuels and Other Life Support Products Using Wastewaters as a Feed into a Space-Based Biochemical Conversion System (BIOSYS) funded by the National Aeronautics and Space Administration (NASA)

SAFE SOURCE DIRECT (SSD), LLC
Summer Intern *(June 1, 2022 – July 31, 2022)*

UNIVERSITY OF LOUISIANA AT LAFAYETTE – ENERGY INSTITUTE OF LOUISIANA (EIL)
Graduate Research Assistant *(June 1, 2023 – July 31, 2023)*

UNIVERSITY OF LOUISIANA AT LAFAYETTE – ENERGY INSTITUTE OF LOUISIANA
Research Engineer *(August 2023 – present)*

MEMBERSHIPS IN PROFESSIONAL SOCIETIES AND ORGANIZATIONS

Chi Epsilon Civil Engineering Honor Society, Chapter 104 (University of Louisiana at Lafayette)
December 10, 2022 – present

The Order of the Engineer (University of Louisiana at Lafayette)
November 14, 2022 – present

American Chemical Society (ACS)
July 25, 2022 – present

Association of Official Analytical Chemists (AOAC)
March 28, 2022 – present

American Water Works Association (AWWA)
Dec 01, 2023 – present

MEDIA COVERAGE

Graduate Poster Competition Final List
https://engineering.louisiana.edu/current-students/engineering-technology-week/poster-competitions-2022/graduate-poster-competition

Civil Engineering Professor leads team effort to remove cancer-causing compounds from water using biochar derived from LA oak tree sawdust
https://engineering.louisiana.edu/news-events/news/20210722/civil-engineering-professor-leads-team-effort-remove-cancer-causing

SYNERGISTIC ACTIVITIES

Editor for Journals

SN Applied Sciences
Interdisciplinary: Advances in the Development of Sustainable Cities
https://link.springer.com/collections/iaifcdhhag

Applied Sciences
Special Issue "Innovations in Wastewater Treatment"
https://www.mdpi.com/journal/applsci/special_issues/77Z922NZ0S

Peer reviewer for Journals

Journal of Hazardous Materials Letters
Challenges
RSC Advances
Materials Chemistry and Physics
Environmental Research
Chemical Engineering Science
Catalysts
Toxics

PUBLICATIONS

Referred journals

Imran, A., **Lei, X.**, Shoemaker, D.J., Holmes, W.E., Yan, H., Zappi, M.E., Gang, D.D. 2025. Adsorption of PFCAs using polyethyleneimine modified Biochar: Role of chain length and effects of water matrices. Chemosphere, 386, 144650. https://doi.org/10.1016/j.chemosphere.2025.144650

Romero, C., Z. Liu, K. Gordon, **X. Lei**, K. Joseph, E. Broussard, D. Gang, Z. Wei and L. Fei (2024). "FeS 2 deposited on 3D-printed carbon microlattices as free-standing electrodes for lithium-ion batteries." Chemical Communications 60(68): 9085-9088. https://doi.org/10.1039/D4CC01202J

Lei, X., Q. Lian, X. Zhang, T. K. Karsili, W. Holmes, Y. Chen, M. E. Zappi and D. D. Gang (2023). "A review of PFAS adsorption from aqueous solutions: Current approaches, engineering applications, challenges, and opportunities." Environmental Pollution 321: 121138. https://doi.org/10.1016/j.envpol.2023.121138

Sarker, P., **X. Lei**, K. Taylor, W. Holmes, H. Yan, D. Cao, M. E. Zappi and D. D. Gang (2023). "Evaluation of the adsorption of sulfamethoxazole (SMX) within aqueous influents onto customized ordered mesoporous carbon (OMC) adsorbents: Performance and elucidation of key adsorption mechanisms." Chemical Engineering Journal 454: 140082. https://doi.org/10.1016/j.cej.2022.140082

Lei, X., Q. Lian, X. Zhang, T. Wang, M. Gee, W. Holmes, S. Jin, S. K. Ponnusamy, D. D. Gang and M. E. Zappi (2022). "Removal of perfluorooctanoic acid via polyethyleneimine modified graphene oxide: Effects of water matrices and understanding mechanisms." Chemosphere 308: 136379. https://doi.org/10.1016/j.chemosphere.2022.136379

Zhang, X., D. D. Gang, **X. Lei**, T. Wang, Q. Lian, W. E. Holmes, L. Fei, M. E. Zappi and H. Yao (2022). "Surface-bound hydroxyl radical-dominated degradation of sulfamethoxazole in the amorphous FeOOH/ peroxymonosulfate system: The key role of amorphous structure enhancing electron transfer." Environmental Research 214: 113964. https://doi.org/10.1016/j.envres.2022.113964

Zhang, X., D. D. Gang, J. Zhang, **X. Lei**, Q. Lian, W. E. Holmes, M. E. Zappi and H. Yao (2022). "Insight into the activation mechanisms of biochar by boric acid and its application for the removal of sulfamethoxazole." Journal of Hazardous Materials 424: 127333. https://doi.org/10.1016/j.jhazmat.2021.127333

Lei, X., L. Yao, Q. Lian, X. Zhang, T. Wang, W. Holmes, G. Ding, D. D. Gang and M. E. Zappi (2022). "Enhanced adsorption of perfluorooctanoate (PFOA) onto low oxygen content ordered mesoporous carbon (OMC): Adsorption behaviors and mechanisms." Journal of Hazardous Materials 421: 126810. https://doi.org/10.1016/j.jhazmat.2021.126810

Lian, Q., F. Islam, Z. U. Ahmad, **X. Lei**, D. Depan, M. Zappi, D. D. Gang, W. Holmes and H. Yan (2021). "Enhanced adsorption of resorcinol onto phosphate functionalized graphene oxide synthesized via Arbuzov Reaction: A proposed mechanism of hydrogen bonding and π-π interactions." Chemosphere 280: 130730. https://doi.org/10.1016/j.chemosphere.2021.130730

Zhang, X., H. Yao, **X. Lei**, Q. Lian, W. E. Holmes, L. Fei, M. E. Zappi and D. D. Gang (2021). "Synergistic adsorption and degradation of sulfamethoxazole from synthetic urine by hickory-sawdust-derived biochar: The critical role of the aromatic structure." Journal of Hazardous Materials 418: 126366. https://doi.org/10.1016/j.jhazmat.2021.126366

Zhang, X., H. Yao, **X. Lei**, Q. Lian, A. Roy, D. Doucet, H. Yan, M. E. Zappi and D. D. Gang (2021). "A comparative study for phosphate adsorption on amorphous FeOOH and goethite (α-FeOOH): An investigation of relationship between the surface chemistry and structure." Environmental Research 199: 111223. https://doi.org/10.1016/j.envres.2021.111223

Lian, Q., L. Yao, Z. Uddin Ahmad, **X. Lei**, F. Islam, M. E. Zappi and D. D. Gang (2019). "Nonpoint source pollution." Water Environment Research 91(10): 1114-1128. https://doi.org/10.1002/wer.1205

PATENTS

Gang, D., **L. Xiaobo**, M. E. ZAPPI, W. E. Holmes, M. Mokhtari and D. Shoemaker (2025). Hydrogen titanium oxide compostions and methods for making and using same, Google Patents. https://patents.google.com/patent/US20250128958A1/en

Gang, D., **X. Lei**, M. E. Zappi and W. E. Holmes (2025). Polyethyleneimine modified graphene oxides and methods for making and using same, Google Patents. https://patents.google.com/patent/US20250073672A1/en

NON-REFEREED JOURNALS, CONFERENCE PRESENTATIONS, AND POSTER PAPERS

Lei X, Holmes WE, Zappi ME, Gang, DD. The role of amine and amide I functional groups in the adsorption of perfluorooctanoic acid (PFOA) onto polyethyleneimine modified graphene oxide. AOAC Southern Section Annual Meeting. Hilton Garden Inn Hotel – Buckhead, Atlanta, Georgia, USA. April 19-20, 2022.

Lei X, Holmes WE, Zappi ME, Gang, DD. Like a magnet - Adsorption of perfluorooctanoic acid (PFOA) onto polyethyleneimine modified graphene oxide (GO- PEI). Engineering and Technology Week 2022 Graduate Poster Competition. University of Louisiana at Lafayette, Lafayette Louisiana, USA. April 4-8, 2022.

Lei X, Holmes WE, Zappi ME, Gang, DD. Like a magnet - Adsorption of perfluorooctanoic acid (PFOA) onto polyethyleneimine modified graphene oxide (GO- PEI). Graduate Appreciation Week 2022 Poster Competition. University of Louisiana at Lafayette, Lafayette Louisiana, USA. March 30-31, 2022.

Lei X, Holmes WE, Zappi ME, Gang, DD. The role of amine and amide I functional groups in the adsorption of perfluorooctanoic acid (PFOA) onto polyethyleneimine modified graphene oxide. 7th Annual Regional Student Scholars Forum. Louisiana State University Shreveport, Louisiana, USA. March 11, 2022.

Lei X, Yao H, Lian Q, Zhang X, Wang T, Holmes WE, Ding G, Gang DD, Zappi ME, Enhanced adsorption of perfluorooctanoate (PFOA) onto low oxygen content ordered mesoporous carbon (OMC): Adsorption behaviors and mechanisms. Fall 2021 LaSPACE Council Meeting. EBR Parish Library Main Branch, Baton Rouge Louisiana, USA. October 29-30, 2021.