Camilah D. Powell

Ph.D. | Fulbright Scholar | NEWT Fellow | E.I.T

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Education

Doctor of Philosophy in Chemical and Biomolecular Engineering — 2020
Rice University, Houston, TX

Bachelor of Science in Engineering Science — 2014
Trinity University, San Antonio, TX
Minor in Mathematics

Positions

University of Texas at San Antonio, TX — 2023-Present
Assistant Professor
Department of Biomedical and Chemical Engineering
Research Areas: Water Clean-up, Environ. Nanotechnology

Fulbright Postdoctoral Fellow, Arnusch Research Group, Ben Gurion University of the Negev — 2021-2023
Laser Induced Graphene: fabrication, functionalization, and application for water purification

Modeling and Simulation Chemical Engineer for NASA at Johnson Space Center — 2020-2021

- Served as a contractor to support NASA customers and projects
- Supported the advanced environmental control and life support systems analysis group.
- Simulated/ evaluated performance of life support systems for future long duration space missions.
- Correlated water and air process simulation models to test results.
- Modeled physical and chemical processes.

USRA NASA Internship, Johnson Space Center — 2018
Designed and fabricated a deployable and flexible solar membrane desalination backpack for NEWT SKID

Research Assistant, Wong Research Group, Rice University — 2014- 2020
Heterogeneous Catalysis, Magnetic Materials, and Water Purification

Research Intern, McNair Scholars Program, Trinity University — 2012-2013
CO adsorption on gold with IR Spectroscopy

Publications

1. Tesfahunegn, B. A., Kleinberg, M. N., Powell, C. D., & Arnusch, C. J. (2023). Laser-induced graphene-Titanium(IV) oxide composite for adsorption enhanced photodegradation of methyl orange. Nanomaterials.
2. Kleinberg, M. N., Thamaraiselvan, C., Powell, C. D., Ronen, A., & Arnusch, C. J. (2023). Reduction of Cr(VI) to Cr(III) by Activated Carbon Cloth through Adsorption and Electrochemical Processes. ACS Appl. Engr. Mater.
3. Kleinberg, M. N., Thamaraiselvan, C., Powell, C. D., & Arnusch, C. J. (2023). Preserved subsurface morphology in NIPS and VIPS laser-induced graphene membranes affects electrically-dependent microbial decontamination. Journal of Membrane Science, 121481.
4. Powell, C. D., Pisharody, L., Jopp, J., Sharon-Gojman, R., Tesfahunegn, B. A., & Arnusch, C. J. (2023). Laser-induced Graphene Capacitive Killing of Bacteria. ACS applied bio materials, 6(2), 883-890.
5. Powell, C. D., Pisharody, L., Thamaraiselvan, C., Gupta, A., Park, H., Tesfahunegn, B. A., Sharma, C. P., Kleinberg, M. N., Burch, R., & Arnusch, C. J. (2022). Functional Laser-Induced Graphene Composite Art. ACS applied nano materials, 5(8), 11923-11931.
6. Ewert, M. K., Chen, T. T., & Powell, C. D. (2022). Life Support Baseline Values and Assumptions Document.
7. Gupta, A., Sharma, C. P., Thamaraiselvan, C., Pisharody, L., Powell, C. D., & Arnusch, C. J. (2021). Low-Voltage Bacterial and Viral Killing Using Laser-Induced Graphene-Coated Non-woven Air Filters. ACS applied materials & interfaces, 13(49), 59373-59380.
8. Thamaraiselvan, C., Bandyopadhyay, D., Powell, C. D., & Arnusch, C. J. (2021). Electrochemical degradation of emerging pollutants via laser-induced graphene electrodes. Chemical Engineering Journal Advances, 8, 100195.
9. Powell, C. D., Lounsbury, A. W., Fishman, Z. S., Coonrod, C. L., Gallagher, M. J., Villagran, D., ... & Wong, M. S. (2021). Nano-structural effects on Hematite (α-Fe 2 O 3) nanoparticle radiofrequency heating. Nano convergence, 8(1), 1-9.
10. Marcos-Hernández, M., Arrieta, R. A., Ventura, K., Hernández, J., Powell, C. D., Atkinson, A. J., ... & Villagrán, D. (2021). Superparamagnetic nanoadsorbents for the removal of trace As (III) in drinking water. Environmental Advances, 4, 100046.
11. Powell, C. D., Atkinson, A. J., Ma, Y., Marcos-Hernandez, M., Villagran, D., Westerhoff, P., & Wong, M. S. (2020). Magnetic nanoparticle recovery device (MagNERD) enables application of

iron oxide nanoparticles for water treatment. Journal of Nanopartide Research, 22(2), 1-11.

12. Ventura, K., Arrieta, R. A., Marcos-Hernández, M., Jabbari, V., Powell, C. D., Turley, R., ... & Villagrán, D. (2020). Superparamagnetic MOF@ GO Ni and Co based hybrid nanocomposites as efficient water pollutant adsorbents. Science of The Total Environment, 738, 139213.

13. Guo, S., Powell, C. D., Villagrán, D., & Wong, M. S. (2020). Magnetic In–Pd catalysts for nitrate degradation. Environmental Science: Nano, 7(9), 2681-2690.

14. Yin, Y. B., Heck, K. N., Coonrod, C. L., Powell, C. D., Guo, S., Reynolds, M. A., & Wong, M. S. (2020). PdAu-catalyzed oxidation through in situ generated H2O2 in simulated produced water. Catalysis Today, 339, 362-370.

15. Powell, C. D., Guo, S., Godret-Miertschin, L. M., Ventura, K., Lounsbury, A. W., Clark, C. A., ... & Wong, M. S. (2020). Magnetically recoverable carbon-coated iron carbide with arsenic adsorptive removal properties. SN Applied Sciences, 2(10), 1-12.

16. Yin, Y. B., Conrad, C. L., Heck, K. N., Said, I. A., Powell, C. D., Guo, S., ... & Wong, M. S. (2020). Room-Temperature Catalytic Treatment of High-Salinity Produced Water at Neutral pH. Industrial & Engineering Chemistry Research, 59(22), 10356-10363.

17. Clark, C. A., Heck, K. N., Powell, C. D., & Wong, M. S. (2019). Highly defective UiO-66 materials for the adsorptive removal of perfluorooctanesulfonate. ACS Sustainable Chemistry & Engineering, 7(7), 6619-6628.

18. Yu, P., Wang, Z., Marcos-Hernandez, M., Zuo, P., Zhang, D., Powell, C., ... & Alvarez, P. J. (2019). Bottom-up biofilm eradication using bacteriophage-loaded magnetic nanocomposites: a computational and experimental study. Environmental Science: Nano, 6(12), 3539-3550.

19. Miao, Y., Johnson, N. W., Heck, K., Guo, S., Powell, C. D., Phan, T., ... & Mahendra, S. (2018). Microbial responses to combined oxidation and catalysis treatment of 1, 4-dioxane and co-contaminants in groundwater and soil. Frontiers of Environmental Science & Engineering, 12(5), 1-13.

20. Powell, C. D., Daigh, A. W., Pollock, M. N., Chandler, B. D., & Pursell, C. J. (2017). CO adsorption on Au/TiO2 catalysts: Observations, quantification, and explanation of a broad-band infrared signal. The Journal of Physical Chemistry C, 121(44), 24541-24547.

Academic Presentations

Powell, C. D., Pisharody, L., Jopp, J., Sharon-Gojman, R., Tesfahunegn, B. A., Arnusch, C. J. (March 2023). Laser Induced Graphene Capacitive Killing of Bacteria. Israel Vacuum Society 40th Annual Conference, Bio Applied Surfaces and Materials Session: Ramat Gan, Israel.

Powell, C. D., Guo, S., Godret-Miertschin, L. M., Ventura, K., Lounsbury, A. W., Elias, W. C., Yin, Y. B., Villagran, D., Zimmerman, J. B., Atkinson, A. J., Westerhoff, P., & Wong, M. S. (June 2019). Examining Iron-based Non-oxidic Nanostructures for Water Treatment. Gordon Research Conference, Environmental Nanotechnology Session: Newry, ME.

Powell, C. D., Guo, S., Godret-Miertschin, L. M., Ventura, K., Lounsbury, A. W., Villagran, D., Zimmerman, J. B., Atkinson, A. J., Westerhoff, P., & Wong, M. S. (May 2019). Magnetic Nanopaticle Recovery Device (MagNERD) Enables Large Scale Application of Iron Oxide Nanoparticles for Water Treatment. Nanotechnology-Enabled Water Treatment (NEWT) Annual Meeting: Houston, TX.

Powell, C. D., Guo, S., Godret-Miertschin, L. M., Ventura, K., Lounsbury, A. W., Villagran, D., Zimmerman, J. B., Atkinson, A. J., Westerhoff, P., & Wong, M. S. (April 2019). Water Dispersible & Magnetically Recoverable Carbon-Coated Iron Carbide ($Fe_3C@C$) for Organic & Arsenic Adsorption. ACS National Meeting, Sci-Mix Session: Orlando, FL.

Atkinson, A. J., Ma, Y., Powell, C. D., Turley, R., Villagran, D., Westerhoff, P., & Wong, M. S. (May 2017). Magnetic Nanoparticle Capture with 3-D Apparatus. Nanotechnology-Enabled Water Treatment (NEWT) Annual Meeting: Houston, TX.

Powell, C. D., Ventura, K., Turley, R., Lounsbury, A. W., Zimmerman, J. B., Gardea- Torresdey, J., Villagran, D., Westerhoff, P., & Wong, M. S. (May 2017). Stability of Iron based Nanopowders in NEWT Characteristic Waters. Nanotechnology-Enabled Water Treatment (NEWT) Annual Meeting: Houston, TX.

Arung Etah, A., Powell, C. D., M.S. Wong (August 2016). Removing methylene blue from water using hydrogen peroxide and metal oxide catalysts. NSF Research Experience for Undergraduate Students Poster Presentation: Houston, TX.

Powell, C. D., Ventura, K., Villigran, D., M.S. Wong (May 2016). Magnetically Immobilizing Reactor for Nano-based Water Treatment. Nanotechnology-Enabled Water Treatment (NEWT) Annual Meeting: Houston, TX.

Powell, C. D., Pursell, C. (October 2013). Characterization of Gold Nanoparticle Catalysts using CO Adsorption. Rice University Regional Undergraduate Symposium: Houston, TX.

Powell, C. D., Pursell, C. (October 2012). Adsorption of CO_2 and H_2 onto Gold Catalysts. Rice University Regional Undergraduate Symposium: Houston, TX.

Powell, C. D., Pursell, C. (August 2012). Adsorption of CO_2 and H_2 onto Gold Catalysts. Trinity University Summer Undergraduate Research Conference: San Antonio, TX.

Invited Talks

Chemical Engineering Fall Seminar Speaker Series 2023
University of Texas at San Antonio, TX

- "Active, Multi-Functional Environmental Nanotechnology for Environmental Remediation"

Biomedical Engineering Fall Seminar Speaker Series 2023
University of Texas at San Antonio, TX

- "Active, Multi-Functional Environmental Nanotechnology for Environmental Remediation"

Notre Dame Edison Lecture Series Guest Speaker 2022
Notre Dame University, IN

- "Active, Multi-Functional Environmental Nanotechnology for Remediation of Inorganic and Biological Pollutants"

Proposal Writing Experience

Fulbright Postdoctoral Fellowship at Ben Gurion University of the Negev (1054-IS).

- Title: A Living & Self-Cleaning Water Treatment Membrane
- Main Author; Funded: $95,000

Honor & Awards

Fulbright Postdoctoral Fellowship Award 2021-2023

NEWT Fellow 2020

Teaching Assistant Award 2018

Finalist for the Kobiyashi Award for the best Graduate Thesis Proposal 2016

NEWT Student Spotlight	2016
Interdisciplinary Research in Science and Engineering (IRISE) Fellowship	2014
Rice University's Outstanding Presentation Award	2013
Trinity University Dean's List	Spring 2013
Ronald E. McNair Post Baccalaureate Achievement Program	2011-2014
Rice University's Commended Presentation Award	2012
Trinity University's Dean's Scholarship	2010-2014

Service Activities

Journal reviewer for: ***Water SA*** and ***Advanced Sustainable Systems*** — Present

Panel member for the "Israel as a Laboratory: Addressing Global Health & Environmental Crises" Fulbright Webinar — 2022

Rice University's NEWT's Student Leadership Council Vice President — 2019
- Assisted NEWT's Student Leadership Council President and oversee/ coordinate NEWT functions at Rice University.

ChBE Department Recruitment Representative for the Fall 2018 NOBCChE Conference — 2018
- Recruited interested graduate & undergraduate students, to apply to the Rice ChBE Department as graduate students or postdocs.

Co-Organizer for the 2017 ACS Nano Enabled Water Treatment Technologies Symposium — 2017
- Mobilized Postdocs and Graduate students to present and learn about research corresponding to nano-enabled water treatment.

President of the Rice Graduate Christian Fellowship (RGCF) — 2017
- Planned activities for the spiritual and communal growth of the RGCF community.

Treasurer of the Rice Graduate Christian Fellowship (RGCF) — 2015
- Managed budget plans for the RGCF community

Treasurer of the Chemical and Biomolecular Engineering Graduate Student Association — 2015
- Proposed and managed budget plans, oversaw fundraising projects

Advisory Board for Trinity's Summer Chemistry Research Program — 2013
- Answered questions concerning Trinity's Summer Research Program for fellow Trinity Students

Teaching and Mentoring

- Course Instructor for Thermodynamics I CME 2503 — Present
- Assisted in preparing course content for Water & the Environment: Current Challenges and Solutions at Ben Gurion University of the Negev. Topics include: Health risks in water reuse, removal & recover of nutrients from wastewater, membrane-based water treatment technologies, seawater & brackish water desalination, fouling in water treatment technologies, off grid water treatment, surface-groundwater interactions – resources, pollution, and remediation. — 2021
- Mentored and instructing a chemical engineering undergraduate student in research for water purification using magnetic materials. — 2018
- Mentored and instructed a chemical engineering undergraduate student in research for water clean up — 2017
- Mentored an undergraduate community college student in research for water disinfection resulting in a poster presentation. — 2016
- Held office hours, graded tests, homework, and assignments for undergraduate kinetics and biomolecular engineering courses. — 2015

Professional Membership

American Chemical Society (ACS)