

Lewis Stetson Rowles III
Civil, Architectural and Environmental Engineering
Cockrell School of Engineering, University of Texas at Austin
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Education:

Doctor of Philosophy, Environmental and Water Resource Engineering Expected Dec 2019
Portfolio in Applied Statistical Modeling
University of Texas, Austin, TX

Master of Science, Civil Engineering May 2016
University of Texas, Austin, TX

Bachelor of Science, Civil and Environmental Engineering Dec 2013
University of South Carolina, Columbia SC

Experience:

NSF Graduate Research Fellow, UT Austin Aug 2014-Present
Advisors: Dr. Navid B. Saleh and Dr. Desmond F. Lawler

- *Silver Nanoparticle Enabled Ceramic Water Filters:* Completed extensive characterization on clay materials, synthesized AgNPs, and produced ceramic cartridges; Immobilized AgNPs to ceramic using a polymer rosin coating; Applied AgNPs in polymer rosin coating as thin-film to monitor dissolution and control of surface passivation; Tested the effectiveness of the coated ceramics by monitoring silver release and measuring bactericidal effectiveness over time
- *Social Drivers relating to Water in Low-Income Communities:* Developed an IRB approved survey on identifying the social drivers relating to water; Surveyed and sampled water in three indigenous communities in Oaxaca, MX; Developed a quantitative statistical model to study water in the colonias in Texas; Surveyed and sampled water in several indigenous tribes in Alaska to map the microbiome
- *Silver Nanoparticle and Zeolite Water Filters:* Collected and characterized naturally formed zeolites; Performed laboratory studies on nano-enabled water filters for hardness removal by zeolites disinfection by AgNPs; Engineered a water filter design appropriate for the target communities to ensure effective technology adoption

Environmental Engineering Lab Volunteer, USC Aug 2013-Dec 2013
Advisor: Dr. Navid Saleh

- *Synthesis and Application of Novel Nanohybrids:* Synthesized and characterized nano zero valent iron-multiwalled carbon nanotube (NZVI-MWNT) hybrids which demonstrated the ability to effectively adsorb strontium from water while being safely removed by a magnet

Pottery Teacher Redbird Studio and Gallery Columbia, SC Oct 2012 to Jan 2014
Owners: Virginia Scotchie and Bri Kinard

Studio Assistant La Meridiana International Ceramic School Tuscany, Italy May 2011 to Aug 2011
Owner: Pietro Elia Maddalena

Publications

Rowles III, L. S., Lawler, D. F., Saleh, N. B. Controlling the ionic release and surface passivation of silver nanoparticles with a natural polymer: Integrating ancient Navajo techniques into ceramic water filters. (in preparation)

Rowles III, L. S., Hossain, A., Kirisits M. J., Saleh, N. B. Mapping the microbiome in the water supply of indigenous Alaskan communities: A baseline assessment for the impact of climate change. (in preparation)

Rowles III, L. S., Whittaker, T., Ward P. M., Kirisits, M.J., Lawler, D. F., Saleh, N. B. A structural equation model to identify social drivers for water use in low-income *colonias* in Southern Texas. (in

preparation)

Merryman, A. E., Sabaraya, I. V., **Rowles III, L. S.**, Toteja, A., Carrillo, S. I., Sabo-Attwood, T., Saleh, N. B. (March, 2019). Interaction between functionalized multiwalled carbon nanotubes and MS2 bacteriophages in water. *Science of the Total Environment (in press)*.

Rowles III, L. S., Alcalde, R., Bogolasky, F., Kum, S., Diaz-Arriaga, F. A., Ayres, C., Mikelonis, A. M., Toledo-Flores, L. J., Alonso-Gutiérrez, M. G., Pérez-Flores, M. E., Lawler, D. F., Ward, P. M., Lopez-Cruz, J. Y., Saleh, N. B. (2018). Perceived versus actual water quality: Community studies in rural Oaxaca, Mexico. *Science of the Total Environment*, 622-623, 626-634.

Plazas-Tuttle J., **Rowles III, L. S.**, Chen H., Bisesi Jr, J., Sabo-Attwood, T., Saleh, N.B. (2015) Dynamism of Stimuli-Responsive Nanohybrids: Environmental Implications, *Nanomaterials*, 5 (2): 1102–1123.

Conference Proceedings

Saleh, N. B., **Rowles III, L. S.**, Kirisits, M. J. “Project Based Learning for Outreach Events can Engage Community into Citizen Science”. 7th Sustainable Nanotechnology Organization Conference, November 08-10, 2018, Washington, DC

Sabaraya, I. V., Saleh, N. B., Kirisits, M. J., Incorvia, J. A. C., **Rowles III, L. S.**, Ayres, C. “The role of pH on Heteroaggregation of 2-D MoS₂ and Kaolinite”. 7th Sustainable Nanotechnology Organization Conference, November 08-10, 2018, Washington, DC.

Khalid, A., **Rowles III, L. S.**, Apul, O. G., Saleh, N. B., Readily Deployable Electrospun Polymer/Nanocomposite Cartridge for Lead Removal from Drinking Water Distribution Pipelines”, University of Massachusetts, Lowell, Francis College of Engineering Prototyping Competition, December 04, 2017, Lowell, MA.

Rowles III, L. S., Lawler, D. F., Saleh, N. B., Sustained Ionic Release from Nano-Silver: Integrating Navajo Pottery Techniques into Ceramic Water Filters. 6th Sustainable Nanotechnology Organization Conference, November 05-07, 2017, Los Angeles, CA.

Rowles III, L.S., Alcalde, R., Haugland J. O., Martinez, S., Rodriguez, N., Lawler, D. F., Saleh, N. B., A Nano-Silver and Zeolite Solution: Ceramic Water Filters for Disinfection and Hardness Removal, Tech Connect World Innovation Conference and Expo: EPA P3, May 15-16, 2017, National Harbor, MD.

Saleh, N. B., **Rowles III, L. S.**, Lawler, D. F., Pottery inspired nano-enabled ceramic filters for point-of-use water treatment, Texas Water **2016**, April 22, 2016, Fort Worth, TX.

Saleh, N. B., **Rowles III, S. L.**, Lawler, D. F., Pottery inspired nano-enabled ceramic filters for point-of-use water treatment, International WaTER Conference, University of Oklahoma, September 21-23, 2015, Norman, OK.

Saleh, N.B., Aich, N., **Rowles, L.S.**, “Synthesis and characterization of carbonaceous nanomaterial multimetallic hybrids for simultaneous removal of radioactive and organic contaminants: A case study on Navajo Nation”, 247th ACS National Meeting, March 16-20, 2014, Dallas, TX.

Educational Experience and Projects:

Teaching Assistant at Nankai University Tianjin, China **July 2018**
TA for Dr. Navid Saleh’s course “Introduction to Environmental Implications of Nanomaterials”

NSF (NUE Program) Awarded Oaxaca, Mexico **Feb 2017**
“Inspiring Students and Faculty at the Interface of Nano and Water Treatment”

EPA P3 Phase I UT Austin in partnership with universities in Oaxaca, Mexico **Aug 2016-May 2017**
“A Nano-Silver and Zeolite Solution: Ceramic Water Filters for Disinfection and Hardness Removal”

Clean Water Science Network Non-Profit (Co-Founder and Co-Director) Jan 2015-present

“Our mission is to improve the health and quality of life of developing communities through educational outreach, fundamental scientific studies, and applied research projects focused on water and sanitation issues.”

NSF (NUE Program) Awarded Navajo Nation Trip, Shiprock, NM Sept 2013

“Survey of Local Water Contamination Issues and Assess Engineering Solutions Using Nano Materials”

ASCE Heavy Construction Student Days Competition (3rd place), Houston, TX July, 2013

“Budgeting for Large-Scale Infrastructure Project: ASCE Undergraduate Experience”

Programs for Exceptional People (PEP), Hilton Head Island, SC May 2010-Aug 2013

Idea manager and supervisor for “Ceramic Pottery Program for Adults with Developmental Disabilities”

Experimental and Analytical Characterization Technique Expertise:

Scanning electron microscopy (SEM), Transmission electron microscopy (TEM), Energy dispersive spectroscopy (EDS), UV/Vis spectroscopy, Dynamic light scattering (DLS), Static light scattering (SLS), Inductively coupled plasma optical emission spectrometry (ICP-OES), Zeta potential measurement, Quartz crystal microbalance with dissipation monitoring (QCM-D), X-ray photoelectron spectroscopy data analysis, X-ray diffraction crystallographic data analysis, mercury intrusion porosimetry, bacterial cell culture and toxicity assessment.

Fellowships and Honors

- University of Texas at Austin Graduate School Fellowship (2017)
- Charles Kolodzey Travel Grant (2017)
- National Science Foundation Graduate Research Fellowship (2014)
- Cockrell School of Engineering Fellowship (2014)
- Chi Epsilon Civil Engineering Honor Society (2013)
- The Ed Yaghjian Undergraduate Studio Art Award (2010)
- The Hamilton Lott Jr. Engineering and Computing Extended LIFE Scholarship (2009-2013)
- Artwork presented at the National Council on Education for the Ceramic Arts (2009)
- Achieved Eagle Scout rank in Boy Scouts of America (2007)

Graduate Coursework:

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| • Environmental Implication of Nanomaterials | • Structural Equation Modeling |
| • Biological Treatment Processes/Sludge Processing | • Engineering Microbiology |
| • Reaction Kinetics | • Environmental Analysis |
| • Statistical Methods I+II | • Organic Chemistry |
| • Regression Analysis | • Engineering Analysis |
| • Reaction Kinetics | • Environmental Organic Chemistry |
| • Multivariate Statistical Methods | • Physical and Chemical Treatment |
| | • Water Pollution Chemistry |
| | • Surface and Soil Chemistry |

Activities and Organizations:

- EWRE Seminar Organization Committee, UT Austin (Fall 2016-Spring 2017)
- Vice President of Institute of Transpiration Engineers, USC (2012)
- Vice President of the Mountaineering Whitewater Club, USC (2012-2013)
- Member of ASCE (2010-Present)
- Member of ACS (2014-Present)