

25 Jun 2023

Environmental Engineering Division Panel Discussion: Exploring Career Paths in Academia - Learn, Network, and Thrive

Fethiye Ozis

David Sanchez

Matthew Alexander

Daniel B. Oerther

Missouri University of Science and Technology, oertherd@mst.edu

et. al. For a complete list of authors, see https://scholarsmine.mst.edu/civarc_enveng_facwork/2680

Follow this and additional works at: https://scholarsmine.mst.edu/civarc_enveng_facwork

 Part of the [Civil Engineering Commons](#)

Recommended Citation

F. Ozis et al., "Environmental Engineering Division Panel Discussion: Exploring Career Paths in Academia - Learn, Network, and Thrive," *ASEE Annual Conference and Exposition, Conference Proceedings*, American Society for Engineering Education, Jun 2023.

The definitive version is available at <https://doi.org/peer.asee.org/43390>

This Article - Conference proceedings is brought to you for free and open access by Scholars' Mine. It has been accepted for inclusion in Civil, Architectural and Environmental Engineering Faculty Research & Creative Works by an authorized administrator of Scholars' Mine. This work is protected by U. S. Copyright Law. Unauthorized use including reproduction for redistribution requires the permission of the copyright holder. For more information, please contact scholarsmine@mst.edu.

Environmental Engineering Division Panel

Dr. Fethiye Ozis, Carnegie Mellon University

Dr. Fethiye Ozis is an Assistant Teaching Professor in the civil and environmental engineering department at Carnegie Mellon University. Dr. Ozis holds a B.S. in environmental engineering from the Middle East Technical University, Ankara, Turkey and M.S. and Ph.D. degrees from the University of Southern California. Dr. Ozis is a licensed Professional Engineer, Environmental, in Arizona. Before joining CMU, Dr. Ozis was a faculty member at Northern Arizona University.

Dr. David V.P. Sanchez, University of Pittsburgh

David V.P. Sanchez is an Associate Professor in the Swanson School of Engineering's Civil & Environmental Engineering department and the Associate Director for the Mascaro Center for Sustainable Innovation at the University of Pittsburgh. He serves as the Program Director for the Master's in Sustainable Engineering, the Undergraduate Certificate in Sustainability, the John C. Mascaro Faculty Fellows, and the Sustainability Global Engagement grant. He is the faculty lead for the University Honors College Food Ecosystem Scholar Community.

His research lab, Sustainable Design Labs, focuses on fusing analytical chemistry, sustainability design principles and data analytics to address Water and Sustainability grand challenges. Current thrusts focus on Smarter Riversheds, Microbial Fuel cells and advanced oxidation and separation processes.

Focused on co-creating long term partnerships that synergize community vision with Pitt's core competencies of research and education, Sanchez has built up Pitt Hydroponics in Homewood, founded Constellation Energy Inventor labs for K-12 students, and re-created the Mascaro Center's Teach the Teacher sustainability program for science educators in the region.

As a teacher he designed and created the Sustainability capstone course which has annually partnered with community stakeholders to address sustainability challenges at all scales. Past projects have included evaluating composting stations in Wilkinsburg, studying infrastructure resilience in Homewood, enabling community solar in PA, improving energy efficiency in McCandless Township, and improving water quality in our rivers. He teaches core Sustainability courses, labs in the Civil & Environmental Engineering Department, electives in the Innovation and Entrepreneurship program, the First-Year Engineering program, and International Study Abroad programs.

Dr. Matthew Lucian Alexander P.E., Texas A&M University - Kingsville

Dr. Alexander graduated with a BS in Engineering Science from Trinity University, a MS in Chemical Engineering from Georgia Tech, and a PhD in Chemical Engineering from Purdue University. He worked for 25 years in environmental engineering consulting before changing careers to academia at Texas A&M University-Kingsville.

Dr. Shannon L. Isovitsch Parks P.E., University of Pittsburgh at Johnstown

Dr. Shannon Parks is a registered Professional Engineer with 20 years of broad-based experience in the water resources and environmental engineering fields. She holds a Bachelor of Science Degree in Civil Engineering from the Pennsylvania State University.

Dr. Daniel B Oerther P.E., Missouri University of Science and Technology

Professor Daniel B. Oerther, PhD, PE joined the faculty of the Missouri University of Science and Technology in 2010 as the John A. and Susan Mathes Chair of Civil Engineering after serving for ten years on the faculty of the University of Cincinnati where he was head of the Department of Civil and Environmental Engineering. Professor Oerther is internationally recognized for leadership of engineers, sanitarians, and nurses promoting the practice the sustainable development, local to global. Dan is a Past President of the American Academy of Environmental Engineers and Scientists. He is a Diplomate of the American Academy of Sanitarians. Dan is a Fellow of the Association of Environmental Engineering

and Science Professors, the American Academy of Nursing, and the National League for Nursing. In the United Kingdom, he is a Fellow of the Chartered Institute of Environmental Health, the Royal Society for Public Health, and the Society of Operations Engineers. Professor Oerther's awards as an educator include the Excellence in Environmental Engineering Education Award from the American Academy of Environmental Engineers and Scientists, the Gordon Maskew Fair Distinguished Engineering Educator Medal from the Water Environment Federation, the Engineering Education Excellence Award from the National Society of Professional Engineers, and the Robert G. Quinn Award from the American Society for Engineering Education.

Environmental Engineering Division

Panel Discussion:

Exploring Career Paths in Academia – Learn, Network, and Thrive

Moderators: Fethiye Ozis, Carnegie Mellon University
David Sanchez, University of Pittsburgh

Panelists: Matthew Alexander, Texas A&M U-Kingsville
Daniel B. Oerther, Missouri University of Science and Technology
Shannon L. Isovitsch Parks, University of Pittsburgh Johnstown

Abstract

This Environmental Engineering Division panel will provide an opportunity to learn from and connect with faculty and leaders in the Environmental Engineering field. Drawing on expertise from the premier academic organizations associated with environmental engineering: the American Academy of Environmental Engineers and Scientists (AAEES), the Association of Environmental Engineering and Science Professors (AEESP), and the American Society of Civil Engineers (ASCE). The panel is for all graduate students, post-docs and early career faculty who are interested in receiving advice and networking to advance their careers in Environmental Engineering.

The panel will focus on sharing the experiences and best practices for pursuing different academic paths; including securing a faculty appointment and thriving as a new faculty member. We invite all students and faculty in Environmental Engineering to join us for this exciting panel.

The suggested layout of the panel session is:

- 5-minute introduction of panel topic and panelists
- Overview of each panelist's career journey (5 minutes each)
- Quick survey of the room to understand where the audience is in their career and where their interests lie.
- Whole group Q&A session to engage audience and panelists.

Panelist Biographies, Career Experience and Advice

Matthew Alexander

Chemical and Natural Gas Engineering
Texas A&M U-Kingsville
Matthew.alexander@tamuk.edu

Dr. Alexander obtained his BS in Engineering Science from Trinity University, an MS in Chemical Engineering from Georgia Tech, and a PhD in Chemical Engineering from Purdue University. He then worked for 25 years as an environmental engineering consultant for three companies in San Antonio, Texas---Southwest Research Institute, Operational Technologies, and finally Science Applications International Corp (now known as Leidos Inc). He specialized in hazardous waste remediation engineering for federal and industrial clients. He is a PE and has the BCEE certification from AAEEES. In 2015, Dr. Alexander changed careers to academia by taking up his current position as an Associate Professor of Chemical Engineering at Texas A&M University-Kingsville and earned his tenure at TAMUK in 2021.

Dr. Alexander will share with the audience his experiences in the environmental consulting industry, the drastic career shift into academic, and the strengths and skills that he utilizes in academia that were developed and honed in his career in industry. He will also share his advice on the importance of networking and using one's contacts to advance your efforts on an academic career path.

Dr. Alexander will discuss how he has built his academic career by focusing on the students' needs so as to ensure their positive outcomes. By building trust with the students, he has been able to develop successful programs in undergraduate research, in motivational programs for underclassmen in engineering, and in graduate research on environmental and chemical engineering topics at the MS and PhD level. He will share advice about how to manage the multiple requirements of teaching, research and service to the university and profession, the benefits of finding a mentor to work with, and his thoughts about how to navigate the tenure process.

Daniel B. Oerther

Civil, Architectural and Environmental Engineering
Missouri University of Science and Technology
oortherd@mst.edu

Professor Daniel B. Oerther (pronounced O'thur) PhD, PE, joined the Missouri University of Science and Technology in 2010 as the John A. and Susan Mathes Chair of Civil Engineering. Before joining Missouri, Dan progressed through Assistant, tenured Associate, and full Professor as well as Department Chair in Civil and Environmental Engineering at the University of Cincinnati. Dan holds a PhD and MS in environmental engineering from the University of Illinois, Urbana as well as a BS in environmental engineering and BA in biological sciences, both from Northwestern University.

To date, Professor Oerther's career can be described in five major chapters. First, he was an early pioneer in the application of 16S rRNA-targeted techniques to identify, quantify, and localize Bacteria, Archaea, and Eukaryotes in systems of interest to environmental engineers including biological foaming at sewage treatment plants, aerobic membrane bioreactors, and

source tracking of surface water contamination (i.e., [https://doi.org/10.1016/S0043-1354\(01\)00057-4](https://doi.org/10.1016/S0043-1354(01)00057-4); <https://doi.org/10.1111/j.1462-2920.2005.00909.x>; and <https://doi.org/10.1128/AEM.01221-07>). Second, he was an early pioneer in Engineers Without Borders, study abroad, and the application of environmental engineering to solve the challenges of access to water and nutrition in developing countries through science diplomacy (i.e., <https://doi.org/10.1021/es303624a>). Third, he has lead the development of modified mastery learning, where blended content delivery is used to support a flipped classroom providing individualized instruction so that all students can learn any subject matter (i.e., <https://doi.org/10.1089/ees.2021.0385>). Fourth, Dan pioneered the concept of the V-shaped professional where multiple disciplines work together through convergence research to create an improved future for all; examples include the nurse + engineer and the humanitarian + technologists (i.e., <https://doi.org/10.1016/j.outlook.2021.10.007>). Fifth, Dan works beyond academia - in the community and in the board room - to lead change that empowers the future environmental engineering workforce (i.e., including as Executive Director of the American Academy of Environmental Engineers and Scientists; [https://doi.org/10.1061/\(ASCE\)EE.1943-7870.0002013](https://doi.org/10.1061/(ASCE)EE.1943-7870.0002013)).

Professor Oerther's advice to others in academia is simple: never limit yourself to meeting the expectations of others, but rather dream big and learn to use failure as a tool to promote a better future. Engineers are NOT scientists. Engineering is the APPLICATION of science to solve problems. That means engineers need to master listening; engineers MUST understand problems fully if we want to make a significant contribution to solutions. This also means that our job as engineers is to look for ways to make improvements. Too often, faculty are encouraged to chase grant funding, graduate students, and publish papers. Those are easily quantified metrics measured by peers, department chairs, deans, and others; in Dan's opinion, these metrics often have very little to do with the actual work of adding new knowledge to a field and sharing that knowledge with others, whether students or the public. Professor Oerther's practical career advice: do what you must do to earn a faculty position and get tenure, and then... do what the world needs you to do! You can read more about Professor Oerther online at: https://en.wikipedia.org/wiki/Daniel_Oerther.

Shannon L. Isovitsch Parks

Civil Engineering
University of Pittsburgh at Johnstown
shannon.parks@pitt.edu

Shannon L. Isovitsch Parks is an Associate Professor in the Civil Engineering Department at the University of Pittsburgh at Johnstown (UPJ), focused on teaching water resources and environmental engineering. Prior to joining UPJ in 2016, Dr. Parks worked for approximately 15 years in industry, including developing sustainable wastewater treatment and solid waste reuse technologies, serving on the Alcoa Foundation Board of Directors, and consulting

for government agencies, municipalities, and industrial clients. In addition to her industry and academic experience, Dr. Parks served as a Peace Corps Volunteer in Mali, West Africa, supporting a local Non-Governmental Organization on water sanitation projects. Dr. Parks is a registered Professional Engineer and holds a BS degree in Civil Engineering from the Pennsylvania State University and a MS and PhD degree in Civil & Environmental Engineering from Carnegie Mellon University.

Advice from Dr. Parks is that there is no need to feel tied to one clear career path. It is possible, and likely, that your career will take many turns, many of them unexpected. Gain a variety of experiences where you can, connect with mentors and sponsors, and lend a hand to those with less experience. Be open with yourself and with others on where your interests and strengths lie, and where you want to learn more. Prioritize your wellbeing and family and look to surround yourself with people who will support you in reaching your goals.