



The ASEE Environmental Engineering Division Newsletter

Spring 2022

A Message from the Division Chair

Dear Colleagues,

I hope 2022 is rolling along nicely for everyone. We are very busy getting ready for the annual conference in Minneapolis and have a lot of activities planned to connect and engage with you all - something we all have been desperately missing since COVID hit.

For this year's annual conference, our Program Chair, Dr. Dave Sanchez, has defied all the odds thrown his way by the newly adapted paper management system, and finalized an outstanding program for our conference with "Excellence Through DIVERSITY" theme. Our program will feature four engaging and relevant technical sessions, which I hope cultivate our motivation, connections and collaborations. Please find a full list of our technical program on the next page.

Beyond these inspiring sessions, we are pleased to participate in the inter-divisional town hall. Additionally, we are collaborating with the [Engineering for One Planet](#) to join their effort to accelerate environmentally sustainable engineering solutions.

I made one of the best career moves by running for the EED Treasurer position four years ago. I hope you consider joining our amazing team; we need to elect our 2022-2023 treasurer! If you are interested in serving on the leadership team, please send your nominations (self-nominations are welcome!) to me at fozis@andrew.cmu.edu and attend our business meeting at the conference. Elections for the Treasurer position will begin at the Business Meeting on Monday 6/27 at 4pm. Please join us at the business meeting on Monday 6/27 at 4pm and Social on Monday 6/27 at 7pm @ Buca di Beppo.

It has been my great honor to work with all past and present officers since 2018. I will continue to engage with this wonderful group. I sincerely offer my appreciation for past leadership in addition to our current team including Program Chair Dr. David Sanchez, Secretary Dr. Shannon Isovitsch Parks, and Treasurer LTC Andrew Pfluger, as well as our Diversity, Equity, Inclusion Commission representative, Alexa Rihana-Abdallah for their hard work and dedication to our division. Additionally, thank you all for your continued support as Environmental Engineering Division members, authors, reviewers, and moderators.

Finally, a huge thanks to our division sponsors! We were thrilled to receive Platinum level sponsorships from Carnegie Mellon University and University of Pittsburgh.

I am looking forward to seeing you all in Minneapolis!

Sincerely,

Dr. Fethiye Ozis

EED Business Meeting

Monday June 27, 2022

4:00pm - 5:00pm

Room M100MI

Members are strongly encouraged to attend to provide the Division with enriching feedback for improvements and input for the 2023 conference.

We will be voting for a new Treasurer and nominations are currently being accepted. Nominations (including self-nominations) for Treasurer can be submitted to Dr. Fethiye Ozis at fozis@andrew.cmu.edu or at the Business Meeting. The ballot will be distributed to the EED Business Meeting and Social attendees, and close on Wednesday, June 29, 2022. The new treasurer for our division will be announced after the conference. Nominees will be encouraged to introduce themselves at the Business meeting and encouraged to mingle at the Division Social.

EED Annual Social & Awards Gathering

Monday, June 27, 2022

7:00 - 9:00pm

Bucca Di Beppo

This social event is currently open to all conference attendees and all division members, prospective members, families and friends. The \$35 ticket, purchased through ASEE, will cover food and drinks. Please RSVP to Dr. Sanchez at davidsanchez@pitt.edu if you would like to bring any children (ticket not required). A cash bar will be available. The event provides a relaxed atmosphere to socialize and honor the Division Award recipients and the outgoing Division Chair. The division honors the awardees with a plaque, honorarium and a free invitation for the 2022 dinner.

Thank you to our Sponsors!



University of
Pittsburgh

Sessions, Panels and Meetings

U726146. EED Technical Session 1

Sunday, June 26, 2022, 1:15 - 4:30pm CDT, Room 205D

1. Development of a Low-Cost Constructed Wetlands Experiment
2. The Green Escape Room: Part 1 - A Race to Solve an Environmental Engineering Problem by Applying Engineering Principles and Deciphering Clues and Puzzles
3. A Foundational Design Experience in Conservation Technology: A Multi-Disciplinary Approach to meeting Sustainable Development Goals
4. A Thematic and Trend Analysis of Engineering Education for Sustainable Development
5. Examination of Environmental Engineering Topics Taught in United States Federal Service Academies and Senior Military Colleges

M526254. EED Technical Session 2

Monday, June 27, 2022, 9:45 - 11:15am CDT, Room 102A

1. The Green Escape Room: Part 2 - Teaching Students Professional Engineering Ethics by Applying Environmental Engineering Principles and Deciphering Clues and Puzzles
2. Particle Sampling and Analyses Using Computer-Based Approaches
3. Developing an Integrated Environmental Engineering Curriculum
4. A Framework to Assess an Undergraduate Environmental Engineering Curriculum in Addressing the Grand Challenges for Environmental Engineering in the 21st Century

M26411. EED Business Meeting

Monday, June 27, 2022, 4 - 5pm CDT, Room M100MI

T26352. EED Social & Awards Gathering

Monday, June 27, 2022, 7 - 9pm CDT, Bucca Di Beppo

Sessions, Panels and Meetings Continued

T72639. EED Technical Session 3

Tuesday, June 28, 2022, 1:45 - 3:15pm CDT, Room 209

1. Integrating Impacts of Covid-19 pandemic on air quality in STEM courses and internships for undergraduate students
2. Enhancing undergraduate students' sensing and data-informed decision-making through a smart cities project
3. Effectiveness of a Hyflex Teaching Pedagogy in Environmental Engineering Education on Student Performance and Course Outcomes
4. Framework for Defining and Mapping to Key Words in ABET Engineering Accreditation Commission Student Outcomes 1 - 7

W2682. EED Technical Session 4

Wednesday, June 29, 2022, 3:30 - 5pm CDT, Room 209

1. From Oceanic Plastics Pollution to Building Blocks: A Two-Semester Project Spanning Statics and Solid Mechanics
2. Piloting transdisciplinarity among faculty and students concerned with flood management on the South Texas Gulf Coast: A four-stage model for initial collaboration
3. Impact of hydraulic fracturing induced landscaping change on regional surface water quality in eastern Ohio
4. [WORK IN PROGRESS] Interdisciplinary and collaborative approach to integrating stream studies into campus curricula

2021-2022
Environmental Engineering Division Officers

Division Chair

Dr. Fethiye Ozis, P.E.
Assistant Teaching Professor
Department of Civil and
Environmental Engineering
Carnegie Mellon University
Pittsburgh, PA 15213



Program Chair

Dr. David Sanchez
Assistant Professor
Department of Civil and
Environmental Engineering
Assistant Director, Mascaro Center
for Sustainable Innovation
University of Pittsburgh
Pittsburgh, PA



Secretary

Dr. Shannon L. Isovitsch Parks, P.E.
Associate Professor
Department of Civil Engineering
University of Pittsburgh Johnstown
Johnstown, PA



Treasurer

LTC Andrew Pfluger, Ph.D., P.E.,
BCEE
Associate Professor
Department of Geography &
Environmental Engineering
United States Military Academy
West Point, NY



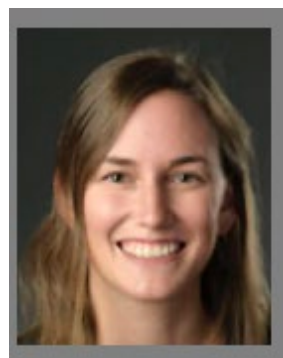
DIVISION AWARDS

2022 Best Faculty Paper Award

Developing an Integrated Environmental Engineering Curriculum

Authors: Craig R Woolard, Catherine M Kirkland, Kathryn Plymesser, Adrienne Phillips, Ellen Lauchnor, Otto Stein, William J. Schell, Susan Gallagher, Michelle Miley, Paul Gannon, Eric Austin, Kristen Intemann

All Authors are from Montana State University



[Kathryn Plymesser](#) is an Assistant Professor in the CE Department where she specializes in water resource engineering with an emphasis on fish passage engineering.

[Craig Woolard](#) is the Head of the Montana State University (MSU) Department of Civil Engineering (CE) at where he specializes in infrastructure asset management and professional practice issues.

[Catherine Kirkland](#) is an Assistant Professor in the CE Department where she specializes in aerobic granular sludge biofilms used for wastewater treatment and nuclear magnetic resonance methods.

[Adrienne Phillips](#) is an Associate Professor in the CE Department where she specializes in microbes in extreme environments and bio-cements.

[Ellen Lauchnor](#) is an Associate Professor in the CE Department where she specializes biofilms in wastewater treatment and biological nitrogen emerging contaminants removal.

[Otto Stein](#) is a Professor in the CE Department where he specializes in innovative wastewater treatment and wetlands treatment.

William Schell was an Associate Professor in the MSU Industrial and Management Systems program where he focused on the scholarship of engineering education.

[Michelle Miley](#) is an Associate Professor in the Department of English and Associate Dean in the MSU College of Letters and Sciences where she directs the Writing Center and specializes in writing center theory and praxis and in writing across the curriculum.

[Eric Austin](#) is a Professor in the Department of Political Science where he specializes in public policy and participation.

[Kristen Intemann](#) is a Professor in the Department of History and Philosophy where she directs the Center for Science, Technology, Ethics & Society and specializes in values in science and environmental ethics.

[Paul Gannon](#) is a Professor in the Chemical and Biological Engineering Department where he specializes in sustainability and engineering education.

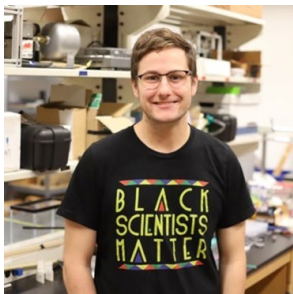
Susan Gallagher is the Education & Workforce Program manager at Western Transportation Institute.

2022 Best Student Paper Award

A Foundational Design Experience in Conservation Technology: A Multi-Disciplinary Approach to meeting Sustainable Development Goals

Authors: Andrew K. Schulz, Anika Patka, Cassie Shriver, Ben Seleb, Caroline Greiner, Margaret Zhang, Nima Jadali, David Hu, Roxanne Moore

All Authors are from Georgia Institute of Technology



Andrew Schulz is a PhD Candidate in the Department of Mechanical Engineering within the College of Engineering at Georgia Institute of Technology. Schulz earned a B.S. in mechanical engineering and mathematics from Oklahoma State University. He is passionate about interdisciplinary undergraduate projects focused on sustainability initiatives and working to advance mental health resources for

undergraduate and graduate students in engineering.



Anika Patka is an undergraduate student pursuing a double major in Civil Engineering within the College of Engineering and Applied Language and Intercultural Studies (with a concentration in Spanish) within the Ivan Allen College of Liberal Arts. She was first involved in the course for two semesters as a student, and then became a Teaching Assistant for the course.



Cassie Shriver is a PhD student in Quantitative Biosciences in the College of Sciences at Georgia Institute of Technology. Shriver earned a B.S.E. in Mechanical Engineering from Duke University, along with a Minor in Biology and a Certificate in Marine Science Conservation and Leadership. She is intimately familiar with the value of interdisciplinary education and is interested in how it can enhance the efficacy of conservation initiatives and technology.



Benjamin Seleb is a Ph.D. student in Quantitative Biosciences at Georgia Tech. Ben's research interests typically intersect biology and technology. Currently, he's studying the social dynamics of dogs using drones and computer vision and developing a low-cost camera trap platform to increase accessibility to animal data collection. He earned his BS in Mechanical Engineering from Georgia Tech in 2020, where he participated in the early development of the Tech4Wildlife course as a teaching assistant and student project mentor.



Caroline Greiner is an MS student in the Department of Mechanical Engineering within the College of Engineering at Georgia Institute of Technology. Greiner earned a B.S. in Biomedical and Health Sciences Engineering from the University of North Carolina at Chapel Hill.



Margaret Zhang is a Candidate for a Bachelor's of Science in Mechanical Engineering within the College of Engineering with a minor in German at the Georgia Institute of Technology. She is passionate about bio-inspired robotic design and supporting the next generation of Women in STEM.



Nima Jadali is an Undergraduate Research Assistant getting his B.S. in Computer Science from the College of Computing at Georgia Institute of Technology. He is passionate about collaborative and interdisciplinary research involving prototyping devices, machine learning, and autonomous robotics.

2022 Early Career Award

The Green Escape Room: Part 2 - Teaching Students Professional Engineering Ethics by Applying Environmental Engineering Principles and Deciphering Clues and Puzzles

Authors: Kathryn Blair Newhart, Andrew Ross Pfluger, Michael A. Butkus

All Authors are from the United States Military Academy



Dr. David Hu is a professor in Mechanical Engineering and Biological Sciences at Georgia Institute of Technology. He received a Ph.D. in Mathematics from Massachusetts Institute of Technology in 2005, and in 2008 started as an assistant professor in Mechanical Engineering at Georgia Tech. Dr. Hu's research interests include fluid mechanics, bio-inspired design, and animal

biomechanics and locomotion. Dr. Hu is an active science communicator and educator teaching with educating the public about interesting questions in science that make you think and make you laugh. Recently Dr. Hu began working in the field of conservation technology and bio-inspired design research for both undergraduate mechanical engineers and biologists, but also students at the high school and middle school levels.



Dr. Roxanne Moore is a Senior Research Engineer in the G. W. Woodruff School of Mechanical Engineering and the Center for Education Integrating Science, Mathematics, and Computing. Dr. Moore's research is centered around engineering design theory, methods, and pedagogy. She is passionate about broadening participation and views design teaching and learning as a vehicle

for expanding access and interest in STEM. She is an expert curriculum developer and has worked across K-12 and higher education.

2022 Best Diversity Paper Award

While this honor was not awarded this year, we encourage eligible faculty to submit for 2023!



Dr. Kate Newhart is an Assistant Professor of Environmental Engineering at the United States Military Academy. She earned her B.S. (2016), M.S. (2018), and Ph.D. (2020) in Civil and Environmental Engineering from Colorado School of Mines. Dr. Newhart's research focuses on big data applications for engineered environmental systems, as well as modern engineering education topics such as digital literacy.



Lieutenant Colonel Andrew Pfluger, U.S. Army, is an Associate Professor and Academy Professor in the Department of Geography and Environmental Engineering at the United States Military Academy. He currently serves as the Director of the Environmental Program, which includes Environmental Engineering and Environmental Science. He earned a B.S. in Civil Engineering from USMA, a M.S. and Engineer Degree in Environmental Engineering and Science from

Stanford University, and a Ph.D. in Civil and Environmental Engineering from the Colorado School of Mines. He is a licensed Professional Engineer (P.E.) in the state of Delaware and a Board Certified Environmental Engineer (BCEE).



Michael A. Butkus is a Professor of Environmental Engineering at the U.S. Military Academy (USMA). He earned a B.S. in Marine Engineering Systems from U.S. Merchant Marine Academy (1989), a M.S. (1995) and Ph.D. (1997) in Environmental Engineering from the University of Connecticut. He is a licensed professional engineer in the state

of Connecticut, a Board Certified Environmental Engineer, and an ABET program evaluator. He recently completed a five-year tour as the USMA Environmental Program Director. His research has been focused on engineering education and advancements in the field of environmental engineering.

BEST FACULTY PAPER AWARD

This award recognizes the best paper submitted to the Division. The author must be a current member of the ASEE Environmental Engineering Division. **The author (not a graduate student or colleague) must present the paper.** For multiple authors, at least one author must be a division member, and the presentation at the conference must be made by a division member. The prize for winning Best Faculty Paper Award is dinner for the winner(s) up to three authors, recognition at the Division dinner, and one plaque.

BEST STUDENT PAPER AWARD

This award recognizes the best paper written by a student. The first author of the paper must be an undergraduate or graduate student, must be an EED member, and must present the paper at the Annual Conference. Faculty may be co-authors. The paper must focus on pedagogical issues. The Division will award up to three awards each year with the awardees receiving \$500 each, with a plaque.

BEST DIVERSITY PAPER AWARD

This award recognizes the best paper submitted to the Division highlighting diversity. The author must be a current member of the ASEE Environmental Engineering Division, and must present the paper at the Annual Conference. For multiple authors, at least one author must be a division member, and the presentation at the conference must be made by a division member.

The prize for winning Best Diversity Paper Award is dinner for the winner(s) up to three authors, recognition at the Division dinner, and one plaque.

MERITORIOUS SERVICE AWARD

Members of the Environmental Engineering Division who, in the opinion of the reviewing officers, have performed activities or provided services to the Division benefiting the Division and deserving of special recognition are eligible for this award. For example, a member who provides sustained active contributions of major tasks over many years might be eligible for this award. The current Division Chair and Program Chair are ineligible to receive this award. Nominations should document these contributions. A call for nominations will be published in electronic and/or other publications for the Division. **Nominations may be submitted to the Division Chair by letter or email, with a deadline of March 1st of the year in which the award is to be presented.**

EARLY CAREER AWARD

This award recognizes the best paper written by an early career EED member. The award decision is made by the EED Awards Committee formed by division officers and/or division directors and/or invited external judges, and the paper is judged based on its ability to positively impact environmental engineering education.

Eligibility Criteria: The applicant(s) will be within the first four years of academic experience as a non-tenure track or tenure-track faculty member, and un-tenured as of August 31, 2023. All full-time years of academic experience count towards the time constraint. The applicant must teach at a four-year University that offers at least one environmental engineering course. Collaboration with senior or tenured faculty members is encouraged as long as the eligible faculty member(s) hold(s) the intellectual merit for the educational research or activity. In addition, the eligible faculty member(s) should be the lead author(s) and submit the manuscript to the division. Single authored papers are also accepted.

Application Process: To apply, authors must add the following sentence to the last line of the abstract: "I(We), am(are) an untenured faculty member(s) within the first four years of total academic experience, lead author(s) of this paper, and eligible for the Environmental Engineering Division Early Faculty Paper Award." In addition, potential candidates must contact the program chair, Dr. Shannon Parks, shannon.parks@pitt.edu, to confirm years of academic experience, EED membership, and for papers with multiple authors, the degree of intellectual merit in their paper.

The prize for winning the Early Career Award is dinner for the winner(s) up to three authors, recognition at the Division dinner, and one plaque.

OFFICERS: July 2022 - June 2023

Outgoing Division Chair: Dr. Fethiye Ozis
Carnegie Mellon University
fozis@andrew.cmu.edu

Division Chair: Dr. David Sanchez
University of Pittsburgh
davidsanchez@pitt.edu

Program Chair: Dr. Shannon L. Isovitsch Parks
University of Pittsburgh at Johnstown
shannon.parks@pitt.edu

Secretary: LTC Andrew Pfluger, Ph.D., P.E.
United States Military Academy West Point
andrew.pfluger@westpoint.edu

Treasurer: *To be elected via online ballot and announced after the conference. You may submit nominations (including self-nominations) to Dr. Fethiye Ozis at fozis@andrew.cmu.edu or at the Business Meeting.*

ENVIRONMENTAL ENGINEERING DIVISION

BUSINESS MEETING

Session: M26411

Monday, June 27, 2022

4:00pm - 5:00pm

Room M100MI

ANNUAL SOCIAL AND AWARDS GATHERING

Session: T26352

Monday, June 27, 2022

7:00 - 9:00pm

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