

Sharing Your Voice, Making An Impact

A GWEN Symposium

Graduate Women in Engineering Network



**WOMEN IN
ENGINEERING
PROGRAM**

Registered participants that attend all sessions and be present at the Networking Reception will be eligible to win one of five (5) \$1000 door prizes!

SHARING YOUR VOICE, MAKING AN IMPACT

FEBRUARY 7, 2022

AGENDA

9:00 AM Sign-in opens (STEW 302/306)

10:00 AM - 10:45 AM Opening Plenary featuring Amy Penner (STEW 302/306)

BS ABE 2007 Purdue

MS ABE 2008 Purdue

MBA 2015 Oxford Brookes

R&D Principal Engineer, PepsiCo, Chicago, IL

10:45 AM - 11:00 AM Transition and break

11:00 AM - 12:00 PM Session 1 - COE Graduate Student Presentations

Room 1: Traditional Talks, Moderated by Olivia Brandt (STEW 214 AB)

Alumna Speaker: Dr. Sydney Hollingshead

First-Principles Analysis of Ammonia Decomposition Reaction on High Entropy Alloy Catalysts

Zuhal Cakir, PhD student in ChE

Transport and lymphatic uptake of biotherapeutics through subcutaneous injection

Dingding Han, PhD student in ME

System Dynamics Model of STEM Retention Rates in Higher Education

Katharine Burn, MS student in AAE

Room 2: Traditional Talks, Moderated by Sara Lyons (STEW 214 CD)

Alumna Speaker: Dr. Kim Ringenberger

Does your place of residence affect your opportunities to engage in active travel and be healthier?

Lisa Lorrena Losada Rojas, PhD student in CE

Theoretical perspectives from organizational psychology on the role of family-work balance in women's departure from the engineering profession

Christina Pantoja, PhD student in ENE

Estimating the Greenhouse Gas Emissions Payback Period of Planned Offshore Wind Energy Using Multiregional, Environmentally Extended Input-Output Analysis

Apoorva Bademi, PhD student in ABE

12:00 PM - 12:15 PM Transition and break

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12:15 PM - 1:15 PM Luncheon and Keynote hosted by Sandia National Labs, featuring Dr. Megan Nyre-Yu (STEW 302/306)

BS IE 2009 Purdue

MS IE 2016 Purdue

PhD IE 2019 Purdue

R&D Science & Engineering - Human Factors,
Sandia National Laboratories, Albuquerque, NM

1:15 PM - 1:30 PM Transition and break

1:30 PM - 2:30 PM Session 2 - COE Graduate Student Presentations

Room 1: Pecha Kucha Talks, Moderated by Beata Johnson (STEW 214 AB)
Alumna Speaker: Dr. Kim Ringenberger

Effects of mix design and cement chemistry on flow and strength of mortar internally cured with superabsorbent polymers

Caitlin Adams, PhD student in MSE

Determining Key Parameters for Heat Sink Design in Pool Boiling

Maureen Winter, MS student in ME

Computational Modeling of Host-Pathogen Interactions to Compare Experimental Models of Tuberculosis Infection

Alexa Petrucciani, PhD student in BME

Engineering Education Graduate Students' Perceptions of Academic Writing Norms

Athena Lin, PhD student in ENE

Room 2: Pecha Kucha Talks, Moderated by Olivia Brandt (STEW 214 CD)
Alumna Speaker: Dr. Sydney Hollingshead

Seismic stability of lunar lava tubes

Juliana Pereira, PhD student in CE

Attack-Resilient Distributed Optimization-based Control of Multi-Agent Systems with Dual Interaction Networks

Shanelle Clarke, PhD student in AAE

Investigation of Lamination Approaches of SiC Ceramic-Filled Polymer Blends for Heat Exchanger Applications

Olivia Brandt, PhD Student in MSE

Subcutaneous Drug Delivery Methods for Increased Bioavailability

Claudia Benito Alston, PhD Student in BME

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2:30 PM - 2:45 PM Transition and break

2:45 PM - 3:45 PM Session 3 - COE Graduate Student Presentations

Room 1: Traditional Talks, Moderated by Sara Lyons (STEW 214 AB)

Alumna Speaker: Dr. Sydney Hollingshead

The effect of nano-additives on the hydration behavior and durability of concrete containing fly ash

Dan Huang, PhD student in CE

Simultaneous Colorimetric and Electrochemical Detection of Trace Hg²⁺ Using a Portable and Miniaturized Aptamer-Based Sensor

Ana Ulloa, PhD student in MSE

What The Next Generation Thinks About Manufacturing

Chidubem Enebechi, PhD student in IE

Predicting learning outcome in a first-year engineering course: a human-centered learning analytics approach

Laura Mellisa Cruz Castro, PhD student in ENE

Room 2: Popular Press Talks, Moderated by Beata Johnson (STEW 214 CD)

Alumna Speaker: Dr. Kim Ringenberger

The Influence of Engineering Students' Extracurricular Involvement on Career Aspirations and Professional Development

Beata Johnson, PhD student in ENE

Fabrication and testing of a powder rheometer using model-directed design

Kayli Henry, PhD student in MSE

An Agent-Based Model to Assess the Efficacy of Targeting Biofilms in Mycobacterium avium Reinfection

Catherine Weathered, PhD student in BME

In silico model characterizing in vitro M. tuberculosis Granuloma Dynamics

Alexis Hoerter, PhD student in BME

3:45 PM - 4:00 PM Transition and break

4:00 PM - 5:30 PM Networking Reception and Poster Session (STEW 302/306)

Wine, beer, & hors d'oeuvres hosted by the Women in Engineering Program

List of posters on inside back cover

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ALUMNAE SPEAKERS

Amy Penner

Amy received her BS/MS from Purdue in Biological and Food Processing Engineering (ABE) in 2007 & 2008. While on campus, she was active with SWE, various Women in Engineering groups and Purdue Christian Campus house. She has a passion for food and since graduation has worked for many of the major food companies: Kraft Foods, Mondelez International, Jacobs Douwe Egberts and now PepsiCo. She has led teams within R&D, Manufacturing and Procurement and she has spent the last 10 years abroad doing expat assignments in the UK, Singapore and Amsterdam. She received her MBA in 2015 from Oxford Brookes. In April 2021, Amy moved back to Chicago and she enjoys cooking, travelling, and coaching a local high school girls basketball team.



Dr. Megan Nyre-Yu

Dr. Nyre-Yu studied Industrial Engineering at Purdue University receiving Bachelor's, Masters and Doctorate degrees. Her undergraduate and graduate degrees were bisected by industry experience in continuous manufacturing environments where she saw firsthand real-world consequences related to poor product and process design. In order to understand these problems better and with the intent of being a change agent, she left industry to obtain graduate degrees specializing in Human Factors. During her time as a graduate student, she discovered an overwhelming need and ripe opportunities to apply Human Factors principles and methods to cybersecurity. Her dissertation, completed in 2019, focused on understanding cyber incident response teams and identifying opportunities to leverage new technologies and automation to help them. Shortly after defending, Dr. Nyre-Yu joined Sandia National Laboratories as a senior member of the technical staff in Human Systems. There, she supports a lab-wide capability to provide Human Factors expertise and support across a wide range of national security mission spaces. Her main area of focus is Human Factors in cybersecurity.



ALUMNAE SPEAKERS

Dr. Sydney Hollingshead

Dr. Sydney Hollingshead holds a B.S. in Chemical Engineering from the University of California, Santa Barbara and received her Ph.D. in 2018 from Purdue University Chemical Engineering. Sydney now works as a development engineer for Cook Biotech Inc. For her work as safety officer in her graduate research group, Sydney received the Excellence in Safety Award from Purdue Chemical Engineering in 2018. She is a member of the Conexus Indiana Rising 30 Class of 2021 and was awarded the Young Investigator Award from Baxter International Inc. in 2017, the Marilyn Forney Graduate Student Trailblazer Award from the Purdue Pipeline Center in 2017, and an Outstanding Student Scholarship from Purdue University College of Engineering in 2016. She has also held several leadership positions in outreach organizations, including president of the Purdue Chemical Engineering Graduate Student Organization, president of the UCSB chapter of the Society of Women Engineers, workshop leader with Purdue Women in Engineering, and founding member and leader of Cook Biotech Professionals in Career Development. She currently serves as a board member of the Purdue Chemical Engineering Industrial Advisory Council.



Dr. Kim Ringenberger

Kimberly Ringenberger, PhD is Director of Trial Management Systems in Clinical Capabilities at Eli Lilly. She leads the strategy and implementation for clinical systems supporting Lilly's portfolio. Prior to this role she was the technical lead in open-loop commercialization and was a lead design engineer for Lilly's first connected device clinical trial. Prior to Lilly, Dr Ringenberger was at Cook Medical focusing on the R&D and submission of class III cardiovascular and endovascular combination products. She earned her master's degree in Mechanical Engineering and PhD in Biomedical Engineering from Purdue University in 2005 and 2009. Kimberly Ringenberger, PhD is Director of Trial Management Systems in Clinical Capabilities at Eli Lilly. She leads the strategy and implementation for clinical systems supporting Lilly's portfolio. Prior to this role she was the technical lead in open-loop commercialization and was a lead design engineer for Lilly's first connected device clinical trial. Prior to Lilly, Dr Ringenberger was at Cook Medical focusing on the R&D and submission of class III cardiovascular and endovascular combination products. She earned her master's degree in Mechanical Engineering and PhD in Biomedical Engineering from Purdue University in 2005 and 2009..



ABOUT THE WOMEN IN ENGINEERING PROGRAM (WIEP)

History

Established in 1969, the Purdue Women in Engineering Program (WIEP) was the first of its kind in the nation and has been a model for such programs at other universities. Since then, the enrollment of women in the College of Engineering has increased from less than one percent to the current 26 percent. To date, the College of Engineering has granted more than 13,000 engineering degrees to women, thanks in large part to the WIEP's efforts.

Mission

The Women in Engineering Program at Purdue University is dedicated to enriching the profession of engineering through the full participation of women. We develop and direct activities that provide:

- encouragement for girls and young women to study engineering
- information about careers and companies
- an environment conducive to the successful completion of students' studies

We also strive to maintain strong relationships with alumnae, friends, corporations and foundations who generously support our program.

Objectives

- To provide career information and encouragement to pre-college girls and young women to continue achievement in math and science and consider engineering as an appropriate career choice.
- Encourage women to matriculate at Purdue University in the College of Engineering.
- Ensure a climate in the College of Engineering that allows young women to reach their full potential.
- Provide opportunities for women engineering students to develop leadership skills that can be utilized in their future lives.
- Encourage women to consider graduate education and academia among their options upon graduation.
- Maintain open communication with alumnae and their employers to encourage their continued participation in and support of the Women in Engineering Program.

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ABOUT THE GRADUATE WOMEN IN ENGINEERING NETWORK (GWEN)

Mission

To provide strategies within a supportive community for women engineering graduate students to advance personally, academically, and professionally.

Objectives

Community: To establish an inclusive network that affirms, inspires, and supports women and gender minorities throughout their engineering graduate career.

Strategies: To provide opportunities to develop skills and introduce strategies for professional and personal development.

Advancement: To provide an enriching experience that encourages individual growth, and furthers the community of women engineers.

Thank you to WIEP Associate Director Dr. Suzanne Zurn-Birkhimer, WIEP Admin Assistant Cathy Deno, and the 2021-22 GWEN Leadership Team (Beata Johnson, Olivia Brandt, and Sara Lyons) for organizing this event!





**Sandia
National
Laboratories**

**Thank you to Sandia National Labs
for their support and for helping
make this event possible!**

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POSTER SESSION

Developing a Conceptual Framework to Understand Chemical Engineering Students' Learning Process in a Materials and Energy Balances Course

AraOluwa Adaramola, PhD student in ChE

Bioinspired structures with fast shape change via 3D printing

Katie Riley, PhD student in ME

Design of Coupled Composite Plate Sheer Walls for Seismic Applications

Morgan Broberg, PhD student in CE

Reproducibility of a Chemical and Microbiological Environment Among Replicate Building Plumbing Systems

Aliya Ehde, PhD student in EEE

Geospatial and social factors affecting heating electrification in the U.S.

Kelsey Bischocho, MS student in ME

Inter-scanner reproducibility for validation of multi-site studies in magnetic resonance spectroscopy at 3T

Antonia Susnjar, PhD student in BME

On the Hausdorff Distance between a pareto set and its discretization

Burla Ondes, PhD student in IE

Impact of Epoxy Manufacturing and Installation Conditions on Chemical Leaching in Drinking Water Infrastructure

Madeline Larsen, MS Student in EEE

Zero-field spin splitting in high-mobility undoped InSb_{1-x}As_x heterostructures

Sara Metti, PhD student in ECE



Women in Engineering Program

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