

2022
NSPE-WI (WSPE)
Virtual Discovery
Conference
***“Today's
Technology
Transforming
Tomorrow's
World”***

March 8, 2022
through
April 21, 2022

VIRTUAL CONFERENCE SCHEDULE: March 2022

No.	Engineer Discipline	Date	Time (CST)	PDH	Speaker	Presentation Title
1a	Ethics	Tues., March 08, 2022	12:00-1:00 PM	1.0	Rebecca Bowman	Ethics Case Study
1b	AI-Computer	Thurs., March 10, 2022	12:00-1:00 PM	1.0	Nathan DuPont Joseph Weller Trenton Bower Chip Hennig Julian Singkham	Raider Robotics: Pushing the Boundaries of Competitive Collegiate Robotics
2a	Electrical	Tues., March 15, 2022	12:00-1:00 PM	1.0	Bulent Sarlioglu	The Electric Vehicle Transition - Supporting Technologies for Delivering Energy to Electric Vehicles
2b	Civil	Thurs., March 17, 2022	12:00-1:00 PM	1.0	Richard DeSimone Fred Groth	Designing Rockwork Including Structural Back-up Steel for Structures
3a	Environmental	Tues., March 22, 2022	12:00-1:00 PM	1.0	Emily Read	USGS Water Data for the Nation: Modernizing Access to Water Data
3b	Bio-Medical	Thurs., March 24, 2022	12:00-1:00 PM	1.0	Dr. Gul Sadiq Afshan	Bio-molecular Engineering - The force is within you!
4a	Civil	Tues., March 29, 2022	12:00-1:00 PM	1.0	Jordan Komp	Challenges in Designing and Constructing the World's Tallest Mass Timber Tower (Ascent) in Milw., WI
4b	DSPS & Legislative	Thurs., March 31, 2022	12:00-1:00 PM	<u>1.0</u>	Glen Schwalbach	DSPS & NSPE-WI Legislative Updates
			Total PDH's	8.0		

Please circle PDH hour noting course you attended along with initial under. Conference organizers recommend that in addition to this brochure, retain any session handouts or personal notes. DSPE rules indicate that they can request this information to confirm attendance and content of PDH sessions in case of audit.

By my signature, I attest that I attended the above circled PDH hour marked sessions in their entirety and qualify for the PDH's assigned.

Printed Name: _____

Total PDH's Earned for Sessions Attended _____

Signature: _____

VIRTUAL CONFERENCE SCHEDULE: April 2022

No.	Engineer Discipline	Date	Time (CST)	PDH	Speaker	Presentation Title
5a	Mfg-Elect/Mech	Tues., April 05, 2022	12:00-1:00 PM	1.0	Chris Veley	A Magnet is Not Just A Magnet How Old Technology Becomes New Again
5b	Materials- Mech	Thurs., April 07, 2022	12:00-1:30 PM	1.5	Nick Schmidtke	State of the Industry: Advances in 3D Printing Materials and Applications
6a	Civil	Tues., April 12, 2022	12:00-1:30 PM	1.5	Fred Groth Justin Stuchlik Jake Ehmke Tim Jordan Jeremy Neefe	Van Hise Precast Panel Failure in April 2021 and Removal & Replacement of 68 Precast Panels
6b	Fluid Dynamics	Thurs., April 14, 2022	12:00-1:00 PM	1.0	Brandon Donnelly	Fluid Dynamics Applications and Case Studies: Developing a COVID-19 Intubation Chamber
7a	Ethics	Tues., April 19, 2022	12:00-1:00 PM	1.0	Rebecca Bowman	Ethics in Alternative Dispute Resolution
7b	Tech/Social Impact	Wed., April 20, 2022	12:00-1:00 PM	1.0	Smita Bhattacharjee Jessica Xu	Low Tech, High Impact: Leveraging Practical Tech for Inclusive Community Based Design
7c	Civil	Thurs., April 21, 2022	12:00-1:00 PM	<u>1.0</u>	Laura Hasburgh, PhD, PE	Char rates for Glulam Columns Exposed to a Standard Fire for Three Hours
Total PDH's:				8.0		

Please circle PDH hour noting course you attended along with initial under. Conference organizers recommend that in addition to this brochure, retain any session handouts or personal notes. DSPS rules indicate that they can request this information to confirm attendance and content of PDH sessions in case of audit.

By my signature, I attest that I attended the above circled PDH hour marked sessions in their entirety and qualify for the PDH's assigned.

Printed Name: _____

Total PDH's Earned for Sessions Attended _____

Signature: _____

Virtual Session No. 1a

(1.0 PDH)

Tuesday, March 08, 2022, 12:00 – 1:00 PM CST

Speakers: Rebecca Bowman, Esq., PE, D.F.E.
Representing: National Society of Professional Engineers
Topic: Ethics Case Study

Participants will examine two of the most common ethical issues encountered by engineers: duty to go beyond the “standard” and duty to be noisy.

Virtual Session No. 1b

(1.0 PDH)

Thursday, March 10, 2022, 12:00-1:00 PM CST

Speakers: Nathan DuPont
Joseph Weller
Trenton Bowser
Chip Hennig
Julian Singkham
Representing: Raider Robotics VEX U Student Organization
Topic: Raider Robotics: Pushing the Boundaries of Competitive Collegiate Robotics

Raider Robotics is a collegiate robotics team, located at the Milwaukee School of Engineering. Over the past two years, the team has succeeded in building a platform that supports students from all core engineering majors, building multiple robots focused on completing yearly challenges. The team has integrated industry concepts and standards into all processes, from design and fabrication to software and AI research. This team has found success through these processes, winning the World Championship in only their second year. Additionally, the team was able to record scores that tied for 1st in the US and 4th in the World in their second year and are focused on sharing these results and how they have continued to improve in their third year. This presentation will highlight both the processes and improvements the team has made in the past, as well as the improvements and research being conducted by the team currently.

Virtual Session No. 2a

(1.0 PDH)

Tuesday, March 15, 2022 12:00 – 1:00 CST

Speakers: Bulent Sarlioglu
Representing: University of Wisconsin-Madison
Topic: The Electric Vehicle Transition – Supporting Technologies for Delivering Energy to Electric Vehicles

Hybrid and electric vehicles are becoming popular for many reasons. Recent advancements have focused on batteries, power electronics, and electric motors. After a brief overview of electric vehicle developments, this presentation will focus on the "rest of the story" which each EV driver will encounter after they leave the car dealers' lot - charging system electronics, charging station configurations, operating strategies, power sources for the stations, and cost recovery options. In addition, research on super and extreme charging concepts will be presented. There will be a questions and answers session at the end.

Virtual Session No. 2b

(1.0 PDH)

Thursday, March 17, 2022 12:00-1:00 PM CST

Speaker: Richard DeSimone, PE
Fred Groth, PE, SE
Representing: GRAEF
Topic : Designing Rockwork Including Structural Back-up Steel for Structures

Review various large rockwork projects including design of rockwork and support steel. The presentation will explore the challenges in designing rock work that approaches 60 to 200 feet tall structures along with protection required for rockwork in a water park environment. The presentation will also explore the design of rockwork typically used for interior applications.

Virtual Session No. 3a

(1.0 PDH)

Tuesday, March 22, 2022 12:00 – 1:00 PM CST

Speakers: Emily Read
Representing: U.S. Geological Survey
Topic: USGS Water Data for the Nation: Modernizing Access to Water Data

Access to water data is crucial for water resources decision-making, and amazing things can be done with [@USGS Water](#) data. But, our legacy system has become outdated and prevents crucial updates from being made, so we're [rebuilding our data delivery system](#). At USGS, we know it's critical for water data to be accessible, usable, and discoverable for all US citizens. This presentation will cover how USGS is prioritizing better data delivery so you have the information you need to make important decisions. To hear more of the story, watch our brief introduction video, available on [our website](#) or on [YouTube](#).

Virtual Session No. 3b

(1.0 PDH)

Thursday, March 24, 2022 12:00 – 1:00 PM CST

Speaker: Dr. Gul Sadiq Afshan
Representing: Milwaukee School of Engineering (MSOE)
Topic: Bio Molecular Engineering – The force is within you!

This talk furnishes basic knowledge about what biomolecular engineering is and how this futuristic science rooted engineering uses tools like stem cells, synthetic biology, metabolic pathways, genomics, and cell culture to change our lives and our views about our overall health, our learned behaviors like eating, and impact our approach towards the treatment and prevention of familial and nonfamilial diseases and aging.

Virtual Session No. 4a

(1.0 PDH)

Tuesday, March 29, 2022 12:00 – 1:00 PM CST

Speaker: Jordan Komp, PE, SE

Representing: Thorton Tomasetti

Topic: Challenges in Designing and Constructing the World’s Tallest Mass Timber Tower (Ascent) in Milwaukee, WI

Presentation will review the challenges in designing and constructing a 25 story, 284 ft. tall building consisting of a six story concrete podium, 19 stories of mass timber multi-family units and 25 stories of concrete core walls.

Virtual Session No. 4b

(1 PDH)

Thursday, March 31, 2022 12:00 – 1:00 PM CST

Speaker: Glen Schwalbach

Representing: NSPE – WI (WSPE)

Topic: DSPS & NSPE-WI Legislative Updates

Presentation will review DSPS and NSPE-WI Legislative updates.

Virtual Session No. 5a

(1 PDH)

Tuesday, April 5, 2022 12:00 – 1:00 PM CST

Speaker: Chris Veley
Representing: Magnetic Products Inc.
Topic: A Magnet is Not Just a Magnet – How Old Technology Becomes New Again

Magnets have been used throughout industry from Food Safety and Quality Management to Industrial Automation since the industrial revolution. The earliest adventurer's using loadstone for compasses to present where intelligent magnets can tell you, when they collected metal, how much and if they need to be cleaned. We are surrounded by powerful magnets at work and in our hands, for most people every day and they don't even realize it. We will touch on the basics of magnetism, briefly reminding everyone of high school physics for about two minutes and then dive into how we manipulate magnetic fields today to repulse non-ferrous aluminum from waste streams, how the basic principles from high school are how we shape and manipulate magnetic fields that are 400% stronger in the 25 years I have been in the industry and historically 1600% stronger from 1950's magnet material. From an Engineer's preceptive this presentation will give you the tools to evaluate magnets strength and suitability for the task required and offer you resources to refer to going forward both online and, in the field, as needed.

Virtual Session No. 5b

(1.5 PDH)

Thursday, April 7, 2022 12:00 – 1:30 PM CST

Speakers: Nick Schmidtke
Representing: GSC
Topic: State of the Industry: Advances in 3D printing, materials and applications

3D printing is changing all manner of manufacturing: from manufacturing aids and advanced prototyping to end-use part creation. We reveal the hidden, not-often shared benefits of incorporating 3D printing such as no-touch time and letting parts print overnight; how operators on the floor can give timely feedback for design changes; and how lightweighting parts without sacrificing strength is common. Learn how Markforged is providing the equipment to change the way we work with the most advanced composite and metal printing technologies available specifically designed for manufacturing environments.

Virtual Session No. 6a

(1.5 PDH)

Tuesday, April 12, 2022 12:00 – 1:30 PM CST

Speaker: Fred Groth, PE, SE & Justin Stuchlik, PE, SE with GRAEF
Jake Ehmke with Bureau of Architecture and Engineering Division of Facilities Development
Tim Jordan & Jeremy Neefe with JP Cullen

Topic: Van Hise Precast Panel Failure in April 2021 and Removal & Replacement of 68 Precast Panels

Presentation will review the challenges faced in assessing a precast panel failure in April of 2021, removal of 68 precast panels and designing & constructing replacement panels by end of Nov. 2021 (total of 8 months)

Virtual Session No. 6b

(1.0 PDH)

Thursday, April 14, 2022 12:00 – 1:00 PM CST

Speaker: Brandon Donnelly

Representing: GSC

Topic: Fluid Dynamics Applications and Case Studies: Developing a COVID-19 Intubation Chamber

Learn how SOLIDWORKS Flow Simulation helped evaluate and perform several design iterations of the development of an intubation chamber for medical personnel.

Virtual Session No. 7a

(1.0 PDH)

Tuesday, April 19, 2022 12:00 – 1:00 PM CST

- Speakers:** Rebecca A. Bowman, Esq., P.E., D.F.E.,
- Representing:** National Society of Professional Engineers
- Topic:** Ethics in Alternative Dispute Resolution

Participants will gain perspectives about the various roles engineers play in resolving disputes.

Virtual Session No. 7b

(1 PDH)

Wednesday, April 20, 2022 12:00 – 1:00 PM CST

- Speakers:** Smita Bhattacharjee
Jessica Xu
- Representing:** MIT D-Lab
- Topic:** Low Tech, High Impact: Leveraging Practical Tech for Inclusive Community Based Design

How can engineers tackle inequity and create social impact in their local and global communities? In this session, we will explore how to apply the principles of community design to create practical technologies that serve both the social and technical context of a problem. We will draw successful examples from the [MIT D-Lab](#) department, which works to develop and advance collaborative approaches and practical solutions to global poverty challenges. Further, we will present our challenges and takeaways from developing [TILT](#), a low-cost wheelchair attachment that addresses inaccessibility in developing regions. TILT has been awarded the Voyager Grant from the MIT Legatum Center for Development and Entrepreneurship and a juried award from the MIT IDEAS Social Innovation Challenge.

Virtual Session No. 7c

(1 PDH)

Thursday, April 21, 2022 12:00 – 1:00 PM CST

- Speakers:** Laura Hasburgh, PhD, PE
- Representing:** USDA Forest Products Laboratory
- Topic:** Char rates for glulam columns exposed to a standard fire for three hours

The fire resistance of a structural building member includes its ability to survive a specified fire without loss of its loadbearing function. For glue laminated timber columns, fire resistance is determined by either subjecting a structural member to a standard fire test or by using one of two accepted calculation methods. For wood structural members, the calculation methods rely on char rates obtained from numerous standard fire tests. The existing calculation methods are limited under United States building codes to calculating fire resistance ratings of 120 minutes or less. However, over the past decade there has been a push towards tall wood buildings and designers desire more exposed wood to be permitted in buildings. This desire, coupled with the recent adoption of code language that permits tall wood buildings up to 18 stories, has resulted in the need to determine char rates for glue laminated timber to use in the fire resistance calculations up to 180 minutes. This presentation will focus on the experimental method and char rate results of glue laminated columns exposed to the standard fire.