

**National Academy of Engineering
2020 US Frontiers of Engineering**
Virtual
February 24-26, 2021

Program
All Times are Eastern Time.

Wednesday, February 24

6:00 – 7:00pm	Help Desk / EPB Onboarding	<i>Lobby</i>
7:00 – 8:30 pm	Virtual Welcome Reception	<i>Multipurpose Room</i>
7:10pm	Remarks – Jennifer West, Symposium Chair	<i>Multipurpose Room</i>

Thursday, February 25

10:00 – 11:00am	Help Desk / EPB Onboarding	<i>Lobby</i>
11:00 am	Welcome – John Anderson, President, National Academy of Engineering Opening Remarks – Jennifer West, Duke University, Symposium Chair	<i>Lecture Hall</i>
11:10	FOOD FOR THOUGHT: The AgRevolution Shaping What We (Will) Eat Co-chairs: Lily Cheung, Georgia Institute of Technology, and Andrew Coughlin, Syngenta Corp. <i>10,000 Years of Engineering Plant Genomes: The Essential Role of Genetic Variation in Crop Breeding</i> Aaron Hummel, Pairwise Plants <i>Peptides as a New Class of Bioinsecticide</i> Kyle Schneider, Vestaron Corp. <i>Safety Oversight for the Future of Food</i> Patrick Cournoyer, US FDA <i>Robots as Farmers: Automation in Precision Agriculture</i> Sierra Young, North Carolina State University	

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12:15	Meet and Connect: Open Room Networking	<i>Multipurpose Room</i>
1:00	Break	
1:15	Poster Session 1	<i>Poster Hall</i>
1:45	Poster Session 2	
2:15	NEXT-GENERATION ENERGY SYSTEMS INTEGRATION Co-chairs: Jennifer Kurtz, National Renewable Energy Laboratory, and Javad Lavaei, University of California, Berkeley	<i>Lecture Hall</i>
	<i>Enabling the Operation of Future Grids Using New Tools in Control Theory and AI</i> Johanna Mathieu, University of Michigan	
	<i>Powerful Water and Thirsty Energy: A Systems Challenge</i> Noel Bakhtian, Lawrence Berkeley National Laboratory	
	<i>Enabling Impactful Residential-scale Energy Systems for Native American Communities</i> Suzanne Singer, Native Renewables	
3:15	Break	
3:30	Breakout Session 1: <i>Next Grand Challenges for Engineering</i>	<i>Multipurpose Room</i>
4:30-5:30	“Happy Hour” (Optional Networking)	<i>Multipurpose Room</i>

Friday, February 26

11:00 am	Announcements	<i>Lecture Hall</i>
11:05	ENGINEERING INNOVATION IN WOMEN’S HEALTH Co-chairs: Kristin Myers, Columbia University, and Melissa Skala, Morgidge Institute and University of Wisconsin-Madison	<i>Lecture Hall</i>
	<i>A Woman-centered Approach for Cervical Cancer Prevention</i> Mercy Asiedu, Massachusetts Institute of Technology	

Growth and Remodeling of the Female Reproductive System
Kristin Miller, Tulane University

Functional and Tunable Biomimetics for Reproductive Tissue Engineering
Ariella Shikanov, University of Michigan

Menstruation as a Natural Biopsy—Building a Database to Fuel Early Diagnosis of Reproductive Disorders
Ridhi Tariyal, NextGen Jane

12:05 Meet and Connect: Open Room Networking *Multipurpose Room*

12:30 Breakout Session 2: *Disciplinary Focus Groups* *Multipurpose Room*

1:30 Break

1:40 **PLASTICS: POLLUTION CHALLENGES AND INNOVATIONS** *Lecture Hall*
Anela Choy, Scripps Institution of Oceanography, and Jenna Jambeck,
University of Georgia

Plastics and Transforming Ecosystems Science into Accountability
Jeremy Conkle, Texas A&M University, Corpus Christi

Challenges in Plastics Circularity: The Necessity for Environmental Degradability as a Design Metric
Desiree Plata, Massachusetts Institute of Technology

Empowering Businesses to Restore Nature’s Balance
Svanika Balasubramian, rePurpose

2:40 Break

2:50 Breakout Session 3: *Session Topic Discussions and Topics Suggested by Attendees* *Multipurpose Room*

3:50 Concluding Remarks

4:00-5:00 “Happy Hour” (Optional Networking) *Multipurpose Room*