

SYMPOSIUM ON EXTRAORDINARY ENGINEERING IMPACTS ON SOCIETY
AUGUST 18-19, 2022

Agenda – Thursday, August 18

10:00 am **Symposium greeting**
EDT *Dan Arvizu, PhD* – planning committee chair
[\[video\]](#)

10:05 am **Welcoming remarks**
John Anderson, PhD
President, National Academy of Engineering
[\[video\]](#)

10:15 am **Overview of the symposium structure and logistics**
Dan Arvizu, PhD – planning committee chair
[\[video\]](#)

**SESSION I: NSF AND ITS ROLE IN FOSTERING
EXTRAORDINARY ENGINEERING IMPACTS ON SOCIETY**

10:25 am **Introduction of session speakers**
Jeffrey Yost, PhD – session moderator and planning committee member
[\[video\]](#)

10:30 am **The New Applied Innovation Policy Challenges Facing NSF**
William Boone Bonvillian, MAR, JD
Lecturer, Massachusetts Institute of Technology, Departments of Science,
Technology, and Society and Political Science; Senior Director, Special Projects,
MIT Office of Digital Learning.
[\[video\]](#) [\[slides\]](#)

10:50 am **The Influence of NSF Engineering Funding on Society**
Thomas Woodson, PhD
Associate Professor and Graduate Program Director, Stony Brook University,
Department of Technology and Society
[\[video\]](#) [\[slides\]](#)

11:10 am **Moderated roundtable discussion – session speakers**
[\[video\]](#)

11:55 am **Break**

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SESSION II: PEOPLE WHO BROUGHT ABOUT
EXTRAORDINARY ENGINEERING IMPACTS ON SOCIETY

12:25 pm **Introduction to the session**

EDT **Ed Frank, PhD** – session moderator and planning committee member
[\[video\]](#)

12:30 pm **Leadoff presentation**

Pramod Khargonekar, PhD

Vice Chancellor for Research and Distinguished Professor of Electrical Engineering
and Computer Science, University of California, Irvine

[\[video\]](#) [\[slides\]](#)

1:00–3:20 pm **Session speakers**

Maia Weinstock, BA [*speaking on Mildred Dresselhaus, PhD*]

author and Deputy Editorial Director, *MIT News*, Massachusetts Institute of
Technology

[\[video\]](#) [\[slides\]](#)

Albert Pisano, PhD

Dean, Jacobs School of Engineering, University of California, San Diego

[\[video\]](#) [\[slides\]](#)

Gilda Barabino, PhD

President and Professor of Biomedical and Chemical Engineering, Olin College of
Engineering

[\[video\]](#) [\[slides\]](#)

Baratunde Cola, PhD

Professor, George W. Woodruff School of Mechanical Engineering, Georgia Tech

[\[video\]](#)

Susan Estrada, BS

Founder, CERFnet [retired]

[\[video\]](#) [\[slides\]](#)

Paula Hammond, PhD

Institute Professor and Department Head of Chemical Engineering, Koch Institute of
Integrative Cancer Research, Massachusetts Institute of Technology

[\[video\]](#)

3:20 pm **Break**

3:35 pm **Moderated roundtable discussion – session speakers and discussant**

[\[video\]](#) [\[video\]](#); discussion continued]
[discussant](#)

Sarah Rajala, PhD

Professor Emeritus [E CPE]; James L. and Katherine S. Melsa Dean of Engineering,
Iowa State University

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4:35 pm **Session wrap-up and preview of Day 2**
Dan Arvizu, PhD – planning committee chair
[\[video\]](#)

4:45 pm **Session adjourns**

Agenda – Friday, August 19

10:00 am **Day 2 greeting; overview of the symposium structure and logistics**
EDT *Dan Arvizu, PhD* – planning committee chair
[\[video\]](#)

10:10 am **Keynote – Engineering’s Role in Creating Extraordinary Impacts on Society**
Kristina Johnson, PhD
President, The Ohio State University
[\[video\]](#) [\[slides\]](#)

10:30 am **Keynote – Engineering Education, The Key to Creating the Next Generation of Extraordinary Impacts**
Gary May, PhD
Chancellor, University of California, Davis
[\[video\]](#)

**SESSION III: NSF CENTERS THAT CATALYZED
EXTRAORDINARY ENGINEERING IMPACTS ON SOCIETY**

10:50 am **Introduction to the session**
Theresa Maldonado, PhD, PE – session moderator and planning committee member
[\[video\]](#)

11:00 am **Leadoff presentation**
Kon-Well Wang, PhD
Stephen P. Timoshenko Collegiate Professor of Mechanical Engineering, University of Michigan
[\[video\]](#) [\[slides\]](#)

11:25 am–
1:40 pm **Session speakers**
Mark Humayun, MD, PhD
University Professor of Ophthalmology; Cornelius J. Pings Chair in Biomedical Sciences; Director, Institute for Biomedical Therapeutics; Co-Director USC Roski Eye Institute; and Director of Sensory Science Initiatives, Keck School of Medicine, University of Southern California
[\[video\]](#) [\[slides\]](#)

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Karen Lozano, PhD, FNAI

Julia Beecherl Endowed Professor of Mechanical Engineering, and Founder and Director of the Nanotechnology Center, The University of Texas Rio Grande Valley

[\[video\]](#) [\[slides\]](#)

Gregory Deierlein, PhD

John A. Blume Professor in the School of Engineering, Department of Civil and Environmental Engineering, Stanford University

[\[video\]](#) [\[slides\]](#)

Michael Silevitch, PhD

Robert D. Black Professor and COE Distinguished Professor, Department of Electrical and Computer Engineering, Northeastern University

[\[video\]](#) [\[slides\]](#)

Veena Misra, PhD

Distinguished Professor, Department of Electrical and Computer Engineering; and Director, Nanosystems Engineering Research Center on Advanced Self-Powered of Integrated Sensors and Technologies, North Carolina State University

[\[video\]](#) [\[slides\]](#)

S. Shankar Sastry, PhD *[accompanied by Larry Rohrbough, MS]*

Director, Richard C. Blum Center for Developing Economies; Professor of Electrical Engineering and Computer Science, Professor of Bioengineering, and Thomas M. Siebel Professor, University of California, Berkeley

[\[video\]](#) [\[slides\]](#)

1:40 pm **Moderated roundtable discussion – session speakers**

[\[video\]](#)

2:25 pm **Break**

**SESSION IV: NSF PROCESSES THAT FOSTERED
EXTRAORDINARY ENGINEERING IMPACTS ON SOCIETY**

2:40 pm **Introduction to the session**

Louis Martin-Vega, PhD – session moderator and planning committee member

[\[video\]](#)

2:50 pm **Leadoff presentation**

Andre Marshall, PhD

Vice President for Research, Innovation and Economic Development and President of the George Mason University Research Foundation

[\[video\]](#) [\[slides\]](#)

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3:15–5:30 pm **Session speakers**

Rory A. Cooper, PhD

Assistant Vice Chancellor, Distinguished Professor, and FISA Foundation and Paralyzed Veterans of America Professor of Rehabilitation Engineering, Department of Rehabilitation Science and Technology; Founding Director and VA Senior Research Career Scientist, Human Engineering Research Laboratories; University of Pittsburgh and US Department of Veterans Affairs

[\[video\]](#) [\[slides\]](#)

Harriet Nembhard, PhD

Dean, College of Engineering; Roy J. Carver Professor of Engineering; and Professor of Industrial Engineering; The University of Iowa

[\[video\]](#)

Cindy Atman, PhD

Director and Lella Blanche Bowie Endowed Chair, Center for Engineering Learning & Teaching, and Professor, Human Centered Design & Engineering, University of Washington

[\[video\]](#) [\[slides\]](#)

Sarah EchoHawk, MNM

Chief Executive Officer, American Indian Science and Engineering Society

[\[video\]](#) [\[slides\]](#)

Alice Agogino, PhD

Chief Executive Officer and Co-Founder, Squishy Robotics; Roscoe and Elizabeth Hughes Professor of Mechanical Engineering, Emeritus and affiliated faculty with the Energy Resources Group, Women and Gender Studies, Development Engineering, and Studies in Science, Engineering and Mathematics Education; University of California, Berkeley

[\[video\]](#) [\[slides\]](#)

Arlyne Simon, PhD

Solutions Architect, Health, Education, and Consumer Industries group, Intel; Founder, Abby Invents, LLC

[\[video\]](#) [\[slides\]](#)

5:30 pm **Moderated roundtable discussion – session speakers and discussants**

[\[video\]](#)

[discussants](#)

Mona Minkara, PhD

Assistant Professor, Department of Bioengineering; Affiliated Faculty, Department of Chemistry and Chemical Biology; and Principal Investigator, COMBINE (Computational Modeling for BioInterface Engineering) Lab; Northeastern University College of Engineering

Sheri Sheppard, PhD, PE

Richard W. Weiland Professor in the School of Engineering, Emeritus, Stanford University

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6:15 pm **Symposium closing remarks and thanks**
Dan Arvizu, PhD – planning committee chair
[\[video\]](#)

6:25 pm **Symposium concludes**