National Academy of Engineering – Alexander von Humboldt Foundation
2021 German-American Frontiers of Engineering
Virtual
March 16-19, 2021

Program

Tuesday, March 16

1:00 PM ET/ 6:00 PM CET	Help Desk / EPB Onboarding	*Lobby*
2:00 PM ET/ 7:00 PM CET	Welcome Reception	*Lobby*

Wednesday, March 17

9:00 AM ET/ 2:00 PM CET	Help Desk / EPB Onboarding	*Lobby*
10:00 AM ET/ 3:00 PM CET	Welcome by NAE president John Anderson, AvH secretary-general Enno Aufderheide, and symposium co-chairs M. Cynthia Hipwell and Olivier Guillon	*Lecture Hall*
10:15 AM ET/ 3:15 PM CET	**QUANTUM COMPUTING** Session co-chairs: Martin Kliesch, Heinrich Heine University Düsseldorf, and Sarah Sheldon, IBM *Introduction to Quantum Computing* Anna Pappa, Technische Universitat Berlin *What Might a Quantum Computer be Good For?* Sevag Gharibian, Paderborn University *Quantum Computing: Implementations and Experimental Challenges* Sydney Schreppler, Microsoft *Quantum Technologies Beyond Computation* Clarice Aiello, University of California, Los Angeles	
11:15 AM ET/ 4:15 PM CET	Meet and Connect Networking	*Multipurpose Room*
12:00 noon ET/ 5:00 PM CET	Break	

We would like to express our gratitude to The Grainger Foundation and the US National Science Foundation for their support of the 2021 German-American Frontiers of Engineering Symposium.

12:15 PM ET/ 5:15 PM CET	Poster Session 1	*Poster Hall*
1:00 PM ET/ 6:00 PM CET	**CARBON CAPTURE AND UTILIZATION** Session co-chairs: Joshuah Stolaroff, Lawrence Livermore National Laboratory, and Andreas Vorholt, Max Plank Institute for Chemical Energy Conversion *The Refinery of Today, Tomorrow, and the Future: The Role of CO2 Capture* Ryan Lively, Georgia Institute of Technology *Towards Novel, Scalable and Realizable Technologies for Carbon Capture, Utilization, and Storage: Hybrid Absorption-Crystallization Pathways for Inorganic and Organic Carbonate Synthesis and H2 Generation* Greeshma Gadikota, Cornell University *Surface-sensitive Electrochemical CO2 Reduction Reaction* Mehtap Oezaslan, TU Braunschweig *Brighter Use of Resources – New CO2–based Materials* Michael Weinkraut, Covestro AG	*Lecture Hall*
2:00 PM ET/ 7:00 PM CET	Mix and Mingle – Optional Networking	*Lobby*

Thursday, March 18

9:30AM/2:30 PM CET	Help Desk / EPB Onboarding	*Lobby*
10:00AM/3:00 PM CET	**BIOLOGIZATION** Session co-chairs: Nicholas Bishop, Hamburg University of Technology, and Manu Platt, Georgia Institute of Technology *Synthetic Genome Regulation for Cell and Tissue Engineering* Timothy Downing, University of California, Irvine *Forming Functions by Microarchitectural Organization in Biological Materials* Shahrouz Amini, Max Planck Institute of Colloids and Interfaces *Injectable Synthetic Building Blocks to Regenerate Soft Anisotropic Tissues* Laura de Laporte, University of Aachen *Biohybrid Actuators: Engineered Neuromuscular Tissues for Medicine and Machines* Ritu Raman, Massachusetts Institute of Technology	*Lecture Hall*

11:00 AM ET/ 4:00 PM CET	AvH presentation on funding opportunities	*Lecture Hall*
11:15 AM ET/ 4:15 PM CET	Meet and Connect Networking	*Multipurpose Room*
12:00 noon ET / 5:00 PM CET	Break	
12:15 PM ET/ 5:15 PM CET	Poster Session 2	*Poster Hall*
1:00 PM ET/ 6:00 PM CET	Breakout Session 1: Next Engineering Grand Challenges	*Multipurpose Room*
2:00 PM ET/7:00 PM CET	Mix and Mingle – Optional Networking	

Friday, March 19

9:30AM/2:30 PM CET	Help Desk / EPB Onboarding	*Lobby*
10:00 AM ET/ 3:00 PM CET	**MANUFACTURING 4.0** Session co-chairs: Amy Elliott, Oak Ridge National Laboratory and Petra Wiederkehr, TU Dortmund University *Internet of Production – Digital Shadows for Production* Matthias Brockmann, RWTH Aachen University *Additive Manufacturing: Current and Future Opportunities* Jennifer Wolk, US Office of Naval Research *Digital Factory and Data Analytics Framework for Advanced Manufacturing* Vincent Paquit, Oak Ridge National Laboratory *Artificial Intelligence in Automotive Engineering* Steven Peters, Mercedes-Benz AG	*Lecture Hall*
11:00 AM ET/ 4:00 PM CET	Breakout Session 2: Session Topic & Other Topic Discussions	*Multipurpose Room*
12:00 noon ET/ 5:00 PM CET	Break	
12:15 PM ET/ 5:15 PM CET	Meet and Connect Networking	*Multipurpose Room*

12:40 PM ET/ 5:45 PM CET	Concluding Remarks by symposium co-chairs M. Cynthia Hipwell and Olivier Guillon	*Multipurpose Room*
12:45 PM ET/ 5:45 PM CET	Virtual tour of ORNL	*Multipurpose Room*
2:00 PM ET/ 7:00 PM CET	Mix and Mingle – Optional Networking	*Multipurpose Room*