



ASME NAMRC49/MSEC 2021

Virtual Conference, Hosted by the University of Cincinnati
June 21, 2021 - June 25, 2021



2nd Women in Advanced Manufacturing (WIAM) Virtual Forum 2021

Following its inaugural event in 2019, the WIAM Forum 2021 will continue to showcase successful career paths, discuss next generation technologies, and address the diversity gap in the field of manufacturing engineering. This forum is organized by the ASME Manufacturing Engineering Division (MED). Funding for this event is being provided by MED and the ASME Technical and Engineering Communities (TEC) Sector and it is co-sponsored by SME. **All genders are welcome!**

Session I [60 mins]: Panel of Advanced Manufacturing Leaders

Panel Topic:	Career Pathways and Leadership Experiences in Advanced Manufacturing	
Panelists:	Jennifer Fielding	Government – Air Force Research Laboratory, Chief, Composites Branch
	Jian Cao	Academia – Northwestern University, Associate VP for Research Director, NIMSI Cardiss Collins Professor
	Delcie Durham	Academia – University of South Florida, Professor Emerita
	Chandra Brown	Manufacturing USA Institute – MxD, CEO
	Sarah Krasley	Industry – Shimmy Technologies, Founder and CEO

Session II [30 mins]: Virtual Networking

Session III [60 mins]: Professional Development Workshop

Workshop Moderator: **Crystal Morrison**, EverRise (<https://everrisellc.com/>), Founder & CEO

Live Interactive Session: *Learning to Lead: Empowerment and Advocacy*

Leadership skills are absolutely necessary, even for scientists and engineers. In this session, participants will learn the difference between empowering leadership and controlling leadership. They will learn 4 specific ways to empower others. In addition, participants will receive guidance on how to clarify roles and responsibilities to advocate for themselves and/or empower their team. Tools gained in this session can be used immediately whether working in an office, lab or virtual environment.

Post-Forum Discussions [30 mins]

Discussion I: SME Presentation

Discussion II: ASME's Volunteer Orientation and Leadership Training (VOLT) Presentation

Date: Tuesday afternoon, June 22, 2021, 12 pm – 3 pm (EST)

Location: Virtual Conference, Hosted by the University of Cincinnati, June 21, 2021 – June 25, 2021

Note: Link to WIAM 2021 Forum will be available to the attendees who register for the ASME NAMRC49/MSEC 2021 Conference (details to be announced)



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ASME MED WIAM 2021 Organizing Committee

Annie Dian-Ru Li – Lead Organizer [*Zap Surgical Systems*]

Megan McGovern [*General Motors Global R&D Center*]

Maya Reslan [*NIST*]

Barbara Linke [*University of California – Davis*]

Gloria Wiens [*University of Florida*]

ASME MED WIAM 2021 Panelists Bios



Jennifer Fielding, Air Force Research Laboratory – Chief, Composites Branch

With over 17 years of experience at the Air Force Research Laboratory (AFRL), Dr. Jennifer Fielding has performed research and program management in diverse fields such as polymer composites, multifunctional materials and additive manufacturing. Dr. Fielding is currently the Chief of the Composites Branch, leading a team of over 100 scientists and engineers managing research programs on advanced composite materials, processing, and performance. She served as the Technical Advisor for the Structures, Propulsion and Manufacturing Enterprise Branch.

Dr. Fielding launched and managed America Makes, the first institute within the ManufacturingUSA network on behalf of the Office of the Secretary of Defense, Manufacturing and Industrial Base Policy (OSD/MIBP) using a \$120M cooperative agreement. She served for five years as the Deputy Program Manager for the Defense-wide Manufacturing Science and Technology Program, a portfolio of emerging manufacturing technologies with a total value of \$350M. Dr. Fielding has been the recipient of numerous awards including the Secretary of Defense Award for Excellence and has been named a Dayton Business Journal 40 Under 40. She is active in SME as the chair-elect of Member Council and the Chair of the Diversity, Equity and Inclusion Committee of SAMPE.



Jian Cao, Northwestern University – Associate VP for Research, Director, NIMSI, Cardiss Collins Professor

Professor Cao (MIT'95, MIT'92, SJTU'89) is the Cardiss Collins Professor and the Director of Northwestern Initiative for Manufacturing Science and Innovation at Northwestern University and an Associate Vice President for Research (AVPR) at Northwestern University.

Professor Cao specializes in innovative manufacturing processes and systems, particularly dieless double-sided incremental forming process and laser processes. Her work has made fundamental contributions to the characterization of material behavior of metals and woven composites. She views manufacturing as an integration platform and has integrated analytical and numerical simulation methods, control and sensors, and design methodologies to advance manufacturing processes. Current research has direct impacts on energy-efficient manufacturing, surface engineering, and distributed manufacturing. Prof. Cao has published over 300 technical articles, including over 220 journal articles, 10 book chapters, and 15 patents. She has given over 150 invited talks and published op-ed articles. She has advised 45 doctoral students, among which 31% are women.

Cao is the Editor-in-Chief of Journal of Materials Processing Technology and the founding Technical Editor of ASME Journal of Micro- and Nano-Manufacturing. Professor Cao is an elected Fellow of the American Association for the Advancement of Science (AAAS), ASME, SME, and of the International Academy for Production Engineering (CIRP). Her major awards include the ASME Milton C. Shaw Manufacturing Research



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Medal (2020), SME Gold Medal (2020), DoD Vannevar Bush Faculty Fellowship (2019), Charles Russ Richards Memorial Award from ASME and Pi Tau Sigma (2017), SME Frederick W. Taylor Research Medal (2016), ASME Blackall Machine Tool and Gage Award (2012, 2018), ASME Young Investigator Award (2006) from Applied Mechanics Division, ISFA Young Investigator Award, and the NSF CAREER Award. She served as President of the SME North America Manufacturing Research Institute, and Chair of ASME Manufacturing Engineering Division. Prof. Cao is a Board member of mHUB, Chicago's first innovation center focused on physical product development and manufacturing.



Delcie Durham, University of South Florida – Professor Emerita

Dr. Delcie Durham is a Professor Emerita in the University of South Florida (USF) Department of Mechanical Engineering. Dr. Durham's research has focused on environmentally benign design and manufacturing, with a particular emphasis on sustainable product realization through the total product lifecycle. Her early research in microstructure control during material processing through computational and physical modeling, became the basis for her research in design for manufacture and industrial ecology.

Dr. Durham is a Fellow of the Society of Manufacturing Engineers (SME) and has served as President of the SME North American Manufacturing Research Institute and as an International Director of SME from 2004 to 2007. During her nine years at the National Science Foundation, she developed new programs in nano-manufacturing and sustainable materials. She initiated the WTEC International Study on Environmentally Benign Manufacturing, subsequently sponsoring a series of international workshops on sustainable manufacturing and production research. With other women program directors in the Engineering Directorate at NSF, she co-sponsored a series of training workshops on academic leadership for women engineering faculty at the associate level or above, with numerous participants later assuming chair, dean or other academic leadership positions.



Chandra Brown, MxD – CEO

Chandra Brown is passionate about U.S. manufacturing. As CEO of MxD, Chandra uses that passion and her more than 25 years of experience in manufacturing to help American manufacturers seize the potential offered by new and emerging digital technologies. In her role at MxD, Chandra oversees all technology investment, partner relationships and project execution for the more than \$90 million-dollar portfolio of advanced manufacturing technology, cybersecurity and workforce development research, development, and demonstration.

Manufacturing has always been at the center of Chandra's work and her experience has allowed her to know the industry from a variety of perspectives. As the Deputy Assistant Secretary of Manufacturing at the U.S. Department of Commerce, she promoted U.S. businesses worldwide, worked to remove trade barriers, and strengthen U.S. competitiveness. As the CEO of United Streetcar, and an executive at its parent company Oregon Iron Works, Chandra led United Streetcar to become the first U.S. manufacturer to create a modern streetcar in more than 60 years.

Since earning both her BS and MBA from Miami University—in addition to her public service and irrespective of her individual role—Chandra has consistently worked to strengthen American manufacturing through innovative, forward-thinking, well-executed strategies. Her intrinsic desire to improve American manufacturing is always on display as she tackles not just MxD's mission to help make every part better than the last, but also to foster a manufacturing future that is more inclusive and open to all American innovators.



Sarah Krasley, Shimmy Technologies – Founder and CEO

Sarah Krasley is a social impact entrepreneur focused on a fair future of work for fashion supply chain workers. As CEO of Shimmy, Ms. Krasley leads the company in its efforts to upskill and reskill the 75 million workers in the fashion supply chain who are in danger of losing their jobs to automation.

Prior to Shimmy, Ms. Krasley lead Sustainable Manufacturing at Autodesk where she and her team created software for hundreds of thousands of designers, engineers, and factory owners worldwide. She serves on advisory boards for WEF, the NYC Department of Education, and the Urban Manufacturing Alliance.

ASME MED WIAM 2021 Workshop Moderator Bio



Crystal Morrison, EverRise (<https://everrisellc.com/>) – Founder & CEO

Dr. Crystal G. Morrison is a respected executive advisor, strategist, leader, scientist, and tech entrepreneur with global leadership experience. She believes strongly that innovation is an act of leadership not just creativity. With extensive experience across industry, academia and national labs, Dr. Morrison knows what it takes to build and lead successful teams that create lasting value and bring products from concept to reality.

Dr. Morrison holds a Ph.D. in Macromolecular Science and Engineering and a B.S. in Chemistry. Following graduate school at the University of Michigan, Dr.

Morrison was a Harold Agnew National Security Postdoctoral Fellow at Los Alamos National Laboratory (LANL) and later became a staff member, team leader and program leader before moving to Pittsburgh, PA. Since LANL, she has held successive leadership roles, including global R&D leader in a Fortune 500 company for 2 business units covering 11 unique market segments with over \$2.5B in annual sales.

ASME MED WIAM 2021 Organizing Committee Bios



Annie Dian-Ru Li, Zap Surgical Systems – R&D Mechanical Engineer, WIAM 2021 Lead Organizer

Dr. Annie Dian-Ru Li is currently a R&D Mechanical Engineer at Zap Surgical Systems. She is responsible for researching new mechanical engineering practices and procedures, developing and validating new product designs, as well as improving existing performance of ZAP-X® stereotactic radiosurgery system.

Dr. Li receives her Bachelor's and Master's degrees from the Mechanical Engineering Department at National Taiwan University. She then obtained her Doctorate degree from the Mechanical Engineering Department at University of Michigan – Ann Arbor, and continued as a Postdoctoral Researcher for a year. Dr.

Li's research interests lie in the field of design and manufacturing with the focused areas on biomedical engineering, advanced manufacturing, and medical product design and development. She is knowledgeable about mechanical design, computational modeling, and various manufacturing processes ranging from additive manufacturing to tissue machining. Beyond this, Dr. Li is also experienced with the processes of medical product design and development including initial concept prototyping, manufacturability evaluation, performance testing and patentability/commercialization assessment.

Dr. Li was selected as one of thirty of the top junior academic women in Mechanical Engineering and invited to a Rising Star in Mechanical Engineering workshop hosted by Massachusetts Institute of Technology in 2018. She

also led a project team developing innovative nasal airway device and won the First Prize of Michigan Business Challenge in 2020. Dr. Li has 8 peer-reviewed journal articles, 11 conference proceedings (one of them received Paper Presentation Award at World Congress on Micro and Nano Manufacturing 2017 International Conference), and 4 pending patents.



Megan McGovern, General Motors Global R&D Center – Senior Researcher

Dr. Megan McGovern is a Senior Researcher in the Manufacturing Systems Research Lab at General Motors Global Research and Development. She joined General Motors in 2016, during which time she has used her nondestructive evaluation skillset to provide manufacturing solutions to internal customers. She leads research projects to develop inline and post manufacturing inspection systems which are crucial for first-time quality, especially in low-volume applications where launches are quick and highly customized. In 2019, she was the lead inventor in developing a technique to enable inline inspection of welded joints during pre-production battery pack assembly.

Dr. McGovern received her Bachelor's, Master's, and Doctorate degrees in Systems Engineering from the University of Illinois Urbana-Champaign. Her research interests include inline and post manufacturing inspection solutions, nondestructive evaluation of materials, components and structures, digital signal and image processing, process monitoring, and prognosis of materials and components. She is proficient in several nondestructive techniques, including ultrasound, thermography, X-Ray CT, and laser ultrasound.

Dr. McGovern is the chair of the Detroit Section of the American Society for Nondestructive Testing (ASNT). She is active in various professional societies and is a licensed Professional Engineer (Michigan). She has 4 patents and 23 peer-reviewed journal articles, one of which received the Outstanding Paper Published in Materials Evaluation in 2015. Dr. McGovern can be reached at megan.mcgovern@gm.com.



Maya Reslan, NIST – Associate Researcher

Maya Reslan is an Associate Researcher at the National Institute of Standards and Technology in Gaithersburg, Maryland. Her research focuses on Lean manufacturing, maintenance workflows, advanced manufacturing, industry 4.0, and change management. She graduated from the Lebanese American University with a Bachelor in Mechanical Engineering in December of 2015, and then moved to Germany to pursue her Masters in Management and Engineering in production systems at RWTH Aachen.

Maya is a certified Six Sigma Green belt and has experience in many manufacturing environments, which include automotive, metal, furniture, pumps, aerospace, and others. Most of her work in industry varied between lean six sigma, continuous process improvements, supply chain management, risk mitigation, project management, inventory management, and others. She has held positions ranging from Business Development to Production Engineer to Research. She is also passionate about psychology and anthropology and has been integrating her engineering research in topics like work motivation, job attitudes, teams, enhancing performance and efficiency, and organizational development; mainly how employees can adapt to digitization and technology and transition into smart factories.

Maya is also an active member in ASME since 2012 and is currently serving the Career Engagement Center (CEC) and Student Leadership Training Conference (SLTC). She joined ASME during her second year of undergrad and has remained involved since. She is also an active volunteer in different societies and NGOs targeting humanitarian issues like the refugee crisis, poverty, and emergency relief. Furthermore, Maya's hobbies vary between Martial Arts, swimming, painting, volunteering, traveling, and experiencing new cultures.



Barbara S. Linke, University of California Davis – Associate Professor

Dr.-Ing. habil. Barbara S. Linke is a faculty member and the Vice Chair of Undergraduate Studies of Mechanical and Aerospace Engineering at the University of California, Davis. She completed her Diplom, doctorate, and Habilitation at the RWTH Aachen University, Germany and worked as post-doc with Professor Fritz Klocke, Werkzeugmaschinenlabor (WZL), RWTH Aachen University and Professor David Dornfeld, University of California Berkeley. Her research interests include sustainable manufacturing, abrasive machining technologies, part quality, smart and data-driven manufacturing, among others. She has published over 70 peer-reviewed papers, authored two books, edited a book and a proceedings, and is an active member of ASME MED and SME.

Barbara S. Linke received several awards, including the F.W. Taylor Medal of the CIRP in 2009, the Outstanding Young Manufacturing Engineer award of the SME in 2013, and the UC Davis College of Engineering Outstanding Junior Faculty Award in 2018.



Gloria Wiens, University of Florida – Associate Professor

Gloria Wiens, PhD, is a faculty member of Mechanical and Aerospace Engineering at the University of Florida. Professor Wiens conducts research in the areas of intelligent and autonomous robotic systems, innovative mechanisms and controls for automation, space robotics/small satellites, manufacturing and micro-electro-mechanical systems. Her research projects have involved collaborations with National and International Laboratories (AFRL, SNL, NIST, NASA and CNR-ITIA/STIIMA) and industry (Comau, Fanuc Robotics North America, Ford). Currently funded by NSF/NRI 2.0, she is co-leading a multi-university/industry/multi-country collaboration on intelligent human-robot collaboration for smart factory.

In support of the Nation and the U.S. manufacturing community, Professor Wiens served as an ASME Foundation Swanson Fellow (2013-2015) and Assistant Director for Research Partnerships in the Advanced Manufacturing National Program Office providing coordination for the federal and public-private partnership teams supporting the Advanced Manufacturing Partnership (AMP 2.0), a steering committee under the President's Council of Advisors on Science and Technology (PCAST); and as a member of the Interagency Working Team which provides planning and coordination of federal advanced manufacturing activities, and develops policy documents for the National Network for Manufacturing Innovation Program (NNMI, now publically known as Manufacturing USA Program). In 2016-2017, Professor Wiens served as the FloridaMakes Director of Advanced Manufacturing at BRIDG, an industry-driven consortium in partnership with Florida's NIST/Manufacturing Extension Partnership (MEP). In 2016, she was awarded a United States Department of Commerce, Certificate of Appreciation – from Secretary Penny Pritzker.

She is a fellow of ASME, serving on ASME's Manufacturing Public Policy Task Force; Robotics Public Policy Task Force; Technical and Engineering Communities Sector– Robotics Technology Group; and M. Eugene Merchant Medal of ASME/SME Board of Awards Committee.

She has Bachelor and Master of Science degrees in Mechanical Engineering (Kansas State University), and a Doctorate in Mechanical Engineering (University of Michigan).