Flying in the COVID-19 Era--Science-based Risk Assessments and Mitigation Strategies on the Ground and in the Air: A Workshop

Committee

John-Paul B. Clarke

Chair

JOHN-PAUL CLARKE is a professor of aerospace engineering and engineering mechanics at The University of Texas at Austin (UT Austin), where he holds the Ernest Cockrell, Jr. Memorial Chair in Engineering. Prior to joining the faculty at UT Austin, he was a faculty member at Georgia Tech, the vice president of Strategic Technologies at United Technologies Corporation (now Raytheon), a faculty member at the Massachusetts Institute of Technology (MIT), and a researcher at Boeing and NASA JPL. He has also co-founded multiple companies, most recently Universal Hydrogen–a company dedicated to the development of a comprehensive carbon-free solution for aviation. Clarke is a leading expert in aircraft trajectory prediction and optimization, especially as it pertains to the development of flight procedures that reduce the environmental impact of aviation, and in the development and use of stochastic models and optimization algorithms to improve the efficiency and robustness of aircraft, airline, airport, and air traffic operations. As indicated in his 2018 testimony to the Committee on Science, Space and Technology of the U.S. House of Representatives, he is particularly interested in leveraging his expertise to enable increasingly autonomous aircraft-enabled mobility, especially in urban and regional settings. Clarke received S.B., S.M., and Sc.D. in aeronautics and astronautics from MIT.

William R. Brody

Member

WILLIAM R. BRODY, NAE/NAM, is the Distinguished Professor Emeritus of the Salk Institute for Biological Studies and a physician-scientist, entrepreneur, and university leader. He joined the Salk Institute after 12 years as president of The Johns Hopkins University. His work focuses on encouraging innovation and strengthening the U.S. economy through investments in basic research and education. Most recently, he has written and spoken extensively around the country to promote a fuller discussion of health care reform. Renowned for his achievements in biomedical engineering, Brody has over 100 publications and two U.S. patents in the field of medical imaging and has made contributions in medical acoustics, computed tomography, digital radiography, and magnetic resonance imaging. Brody received his B.S. and M.S. in electrical engineering from the Massachusetts Institute of Technology, and his M.D. and Ph.D., also in electrical engineering, from Stanford University.

Edward F. Crawley

Member

EDWARD F. CRAWLEY, NAE, is the Ford Professor of Engineering at Massachusetts Institute of Technology (MIT). He is also director of the Bernard M Gordon MIT Engineering Leadership Program. He was a founder of the Systems Design and Management Program at MIT, has served as the department head of Aeronautics and Astronautics at MIT, and the executive director of the Cambridge MIT Institute. His research focuses on the domain of architecture, design, and decision support in complex technical systems that involve economic and stakeholder issues. His current domains of architectural research include energy systems, Earth observation, and human spaceflight. Crawley is a fellow of the AIAA and the Royal Aeronautical Society (U.K.) and is a member of three national academies of engineering: in Sweden, the U.K., and the U.S. He has served as chair of the NASA Technology and Commercialization Advisory Committee and was a member of the Presidential Advisory Committee on the Space Station Redesign, and the U.S. Human Spaceflight Plans (Augustine) Committee. He was a visiting lecturer at the Moscow Aviation Institute and is a guest professor at Tsinghua University in Beijing. He received an S.B., S.M., and Sc.D. in aerospace engineering from the Massachusetts Institute of Technology.

Michael P. Delaney

Member

MICHAEL P. DELANEY is the chief aerospace safety officer for The Boeing Company and a member of its Executive Council. In this role, Delaney is responsible for strengthening the safety practices and culture at Boeing and developing the company’s comprehensive Global Aviation Safety strategy, including integrated responsibility for Product & Services Safety, Aerospace Safety Analytics, Global Aviation Safety System, and Boeing’s Confident Travel Initiative to help the aviation industry safely resume global air travel amid the Covid-19 pandemic. Prior to this he was vice president of Commercial Airplanes Digital Transformation and led the company's Confident Travel efforts. In that role, he led efforts to establish a digital thread across development and production programs to drive a connected flow of engineering data through the production system and across the in-service fleet of Boeing airplanes. He has also been vice president and general manager of Airplane Development at Boeing Commercial Airplane (BCA), vice president of engineering for BCA, and senior chief engineer of Airplane Performance and Product Architecture. Before 2010, he was vice president and chief project engineer for the 787 program, leading the readiness effort for first airplane delivery, technical configuration, product integrity, and safety. Delaney has also served as vice president of engineering for the 747/767/777 programs, as vice president of Commercial Airplanes Test and Validation, and as the chief project engineer for the Boeing Next-Generation 737 program. Delaney was named an associate fellow of the American Institute of Aeronautics and Astronautics (AIAA) and as a fellow of the AIAA. He earned a B.S. in aerospace engineering from Hofstra University and an M.B.A. from the École Supérieure de Commerce de Toulouse.

Alan H. Epstein

Member

ALAN H. EPSTEIN, NAE, is professor emeritus at the Massachusetts Institute of Technology (MIT) in the Department of Aeronautics and Astronautics. He has been an MIT faculty member since 1980. His research and teaching have included energy systems, aerospace propulsion, gas turbine engines, aviation, and the environment, and micro-mechanical and electrical systems (MEMS). From 2007 to 2018, Epstein was the vice president of Technology and Environment at the Pratt & Whitney division of the United Technologies Corporation. There, he was responsible for setting the direction for and coordinating technology across Pratt & Whitney as well as providing strategic leadership in reducing the environmental impact of the company’s worldwide products and services. He has served on many government advisory committees, has authored or coauthored more than 140 technical publications, has over 20 patents issued or pending, and has given more than 250 plenary, keynote, and invited lectures around the world. Epstein is an honorary fellow of AIAA, a fellow of the ASME, and the Royal Aeronautical Society. He earned his Ph.D. for aeronautics and astronautics from the Massachusetts Institute of Technology.

Parimal Kopardekar

Member

PARIMAL KOPARDEKAR serves as the director of NASA Aeronautics Research Institute (NARI) at NASA Ames Research Center. In that capacity, he is responsible for exploring new trends, collaborations and partnerships needs related to aviation enterprise. He also serves as NASA's senior technologist for Air Transportation Systems and principal investigator for the Unmanned Aircraft Systems Traffic Management (UTM) project. He is the recipient of many awards, including the NASA Government Invention of the Year, Exceptional Technology Achievement Medal, Outstanding Leadership Award, Engineer of the Year Award, and Samuel J. Heyman Service to America’s Promising Innovation Award. Kopardekar was named among the 25 most influential people in the commercial drone industry by Commerical UAV News. He is co-editor-in-chief of the Journal of Aerospace Operations and a fellow of the American Institute of Aeronautics and Astronautics. He also serves as an adjunct faculty member at Colorado State University Global and teaches undergraduate and graduate courses related to operations management and supply chain management. He received his Ph.D. in industrial engineering from the University of Cincinnati.

Ilan Kroo

Member

ILAN KROO, NAE, is a professor of aeronautics and astronautics at Stanford University. Before joining the faculty at Stanford, he worked in the Advanced Aerodynamics Concepts Branch at NASA's Ames Research Center. His research in aerodynamics and multidisciplinary design optimization includes the study of innovative airplane concepts. He has participated in the design of UAVs, flying pterosaur replicas, America's Cup sailboats, and high-speed research aircraft. In addition to his research and teaching interests, he is the director of a small software company and is an advanced cross-country hang glider pilot. He is a fellow of the American Institute of Aeronautics and Astronautics. Kroo was elected to the National Academy of Engineering for new concepts in aircraft design methodology and the design and development of the SWIFT airplane. He has a Ph.D. in aeronautics and astronautics from Stanford University.

Andrew R. Lacher

Member

ANDREW R. LACHER is senior principal of Aerospace Research and Autonomous Systems at Noblis. Previously, he was the senior manager for Autonomous Systems Integration at Boeing NeXt. Before that, he was the Autonomy Integration and Adoption lead at The MITRE Corporation. He has focused on the safe and secure integration of Unmanned Aircraft System (UAS) in civil airspace as well as methods to calibrate the trustworthiness of autonomous systems, and he played a leading role in the definition of the Next Generation Air Transportation System and the development of Collaborative Decision-Making concepts for Traffic Flow Management. Lacher was a strategic information technology consultant working with small airlines. Lacher earned both an M.S. in operations research and a B.S. in electrical engineering at The George Washington University.

Valerie M. Manning

Member

VALERIE M. MANNING is the senior vice president of Customer Support at Airbus. She is responsible for the relationship and interaction between Airbus and all aircraft owners, operators, and maintainers of the more than 9,000 Airbus aircraft in service around the world. As such, Manning leads a large team of professionals residing globally—including the worldwide field service team, the customer support directors, the Airbus warranty program, credit and cash management, and all support or services contracts from initial aircraft sale until aircraft decommissioning. Manning has more than 25 years of service in government and civilian roles at Airbus, the United States Air Force, and McKinsey and Company. Prior to her current role, Manning served as vice president and head of Airbus Upgrade Services, where she led the sale, development, certification, and delivery of optional modifications to airframes, cabins, and systems for the Airbus fleet. At the parent company of Airbus, EADS (now merged with Airbus), Manning served as the vice president and chief of staff to the chief technical officer (CTO). She began her career in the U.S. Air Force and has served continuously on active duty or in the reserves since her commission upon graduation from university. Manning is a graduate of Air War College and completed Advanced Joint Professional Military Education at National Defense University's Joint Forces Staff College. She is an active instrument-rated pilot, and an associate fellow of the American Institute of Aeronautics and Astronautics. Manning graduated from Princeton University with a B.S. in mechanical and aerospace engineering, going on to earn an M.S. and Ph.D. in aeronautics and astronautics from Stanford University.

Pamela A. Melroy

Member

PAMELA A. MELROY is CEO of Melroy and Hollett Technology Partners, LLC. She is also a retired NASA astronaut and U.S. Air Force test pilot, and she is one of two women to command the Space Shuttle. She flew the KC-10 operationally and has over 6000 hours in more than 60 aircraft. Melroy is a graduate of the Air Force Test Pilot School and was a test pilot on the initial test team for the Air Force's C-17 aircraft. At NASA, she flew three assembly missions to the International Space Station: STS-92, STS-112, and STS- 120, which she commanded. Also while at NASA, she was the lead for the reconstruction of the Columbia crew module, and was deputy program manager of the Columbia Crew Survival Investigation. After leaving NASA, Melroy served as deputy program manager for space exploration initiatives at Lockheed Martin, supporting the Orion Program. Later she served as director of field operations and acting deputy associate administrator for commercial space transportation at the Federal Aviation Administration. Subsequently, she was the deputy director of the Tactical Technology Office at DARPA, where she oversaw multiple major air and space technology development programs. More recently she has been working as a consultant and as director of Space Technology and Policy at Nova Systems, Australia. Melroy earned an M.S. in earth and planetary science from the Massachusetts Institute of Technology.

Robie I. Samanta Roy

Member

ROBIE I. SAMANTA ROY is corporate vice president of Technology Strategy and Innovation at Lockheed Martin Corporation. Samanta Roy's primary responsibilities include: developing and providing technical intelligence and strategy for the corporation; engaging the global S&T ecosystem outside the corporation – including government labs, universities, large and small businesses, and startups; and fostering cross-enterprise innovation within the corporation. In this role, he works with leaders from across the Corporation to develop and actively manage enterprise technology roadmaps aligned with customer and business area needs. Samanta Roy also serves as a liaison with government and non-government organizations critical to the formation of science and technology policy and the execution of research. Prior to joining Lockheed Martin, Samanta Roy was a professional staff member with the Senate Armed Services Committee from 2010 to 2014 with the portfolio of the Department of Defense's wide spectrum of science and technology-related activities. He came to that position from the White House Office of Science and Technology Policy where he was the assistant director for Space and Aeronautics from 2005 to 2009. Dr. Samanta Roy is an associate fellow and member of the Board of Trustees of the American Institute of Aeronautics and Astronautics and a member of the National Research Council's Aeronautics and Space Engineering Board.Samanta Roy earned his B.S., M.S. and Ph.D. degrees in aeronautics and astronautics from MIT. He earned an M.S. in space policy from George Washington University and diplomas from the International Space University and Institut d'Etudes Politiques de Paris.