Aeronautics and Space Engineering Board (ASEB)

Committee

John S. Langford

Chair

John S. Langford, III is Chairman of Electra.aero Inc. and former president of the American Institute of Aeronautics and Astronautics (AIAA). Formerly, Langford was the chairman, CEO, and founder of Aurora Flight Sciences Corporation. Prior to Aurora, Langford worked for the Institute for Defense Analyses in Alexandria, Virginia; for the Lockheed Corporation as an engineer on the development of the F-117 stealth fighter; and as an intern at the White House Office of Science and Technology Policy. Langford's expertise is in the field of advanced aerial mobility and environmentally responsible aviation. Langford has been awarded the National Aeronautics Association's (NAA) Cliff Henderson Trophy; the DeFlorez Prize from MIT, the Kremer Speed Prize from the Royal Aeronautical Society, the National Tibbets Award for outstanding contributions to the Small Business Innovation Research program, the Barry M. Goldwater Educator Award from the AIAA, Virginia's Outstanding Industrialist award from the Commonwealth of Virginia, and the President's Award for Exceptional Service and the Howard Galloway Award from the National Association of Rocketry. Langford is a member of the National Academy of Engineering, fellow of the AIAA, fellow of the Royal Aeronautical Society, and has served on academic advisory boards at MIT, the University of Maryland, and Mississippi State University. Langford has served on the board of directors of the NAA, the executive committee of the Aerospace Industries Association, and the Institute Development Committee (IDC) of the AIAA. Langford served on the NASA Advisory Council and chaired its subcommittee on Unmanned Air Systems. Langford received a Ph.D. in aeronautics and public policy from the Massachusetts Institute of Technology. Langford has participated in several National Academies projects, including as chair of the Aeronautics Research and Technology Roundtable and as a member of the Committee to Assess NASA's Aeronautics Flight Research Capabilities and the Committee on Autonomous Vehicles in Support of Naval Operations.

MiMi Aung

Member

MiMi Aung (NAE) is the director of technical program management at Amazon Kuiper Systems LLC. Aung's research expertise is in engineering implementation of complex first-of-its-kind space-based systems, taking projects from ideation to delivery and practical operation. Current experience includes Kuiper project to improve broadband internet access using a network of satellites in low Earth orbit. Prior experience at NASA Jet Propulsion Lab includes the deep space network and Mars Ingenuity helicopter. Honors include the 2022 Distinguished Alumni Award from the University of Illinois, TIME Magazine's 100 Most Influential People of 2021, and BBC's top 100 Women in the world in 2019. Aung earned both an M.S. in electrical engineering from the University of Illinois at Urbana-Champaign.

Sean Bradshaw

Member

Sean Bradshaw is the senior technical fellow of sustainable propulsion for Pratt & Whitney. Bradshaw’s primary focus is the development of advanced propulsion technologies, including the next generation geared turbofan engines, hybrid-electric propulsion, and hydrogen propulsion, as well as technical evaluations of synthetic aviation turbine fuels. Previously at Pratt & Whitney, Bradshaw developed physics-based modeling processes & tools to improve combustor and turbine heat transfer predictions, supervised the Hot Section Engineering Methods group, and managed P&W’s advanced turbine technology portfolio until the appointment as senior technical fellow in 2021. Bradshaw is the chair of the ASME Committee on Sustainability, a member of the ASME Heat Transfer and Aircraft Engine committees, a member of the Industrial Advisory Board for the School of Engineering at the University of Michigan, and a member of the External Advisory Board for the Department of Mechanical Engineering at Columbia University. Bradshaw has also served as an associate editor of the ASME Journal of Engineering for Gas Turbines and Power, the chair of the ASME Gas Turbine Technology Group, chair of the Gas Turbine Association, and as an adjunct professor of Mechanical Engineering at Columbia University. Bradshaw received a Ph.D. in aeronautics and astronautics from the Massachusetts Institute of Technology.

Victoria Coleman

Member

Victoria Coleman is the associate provost, Berkeley Space Center, and a professor in the Department of Electrical Engineering and Computer Sciences at the University of California, Berkeley. Coleman was previously CEO of Acubed, Airbus' Silicon Valley research and innovation center, and Airbus' head of research & technology for North America. Before joining Acubed, Coleman served as the 37th Chief Scientist of the U.S. Air Force and the 22nd Director of the Defense Advanced Research Projects Agency. With 35 years of diverse experience spanning cybersecurity, computer science, emerging platforms, and software engineering, Coleman is a recognized leader in the field. Coleman is a member of the National Academy of Engineering and the Pacific Northwest National Laboratory Advisory Committee. Coleman received a Ph.D. from the University of Manchester. Coleman serves as a member of the Roundtable for the Department of the Air Force’s Research Institute for Tactical Autonomy University Affiliated Research Center and as was an ex officio member of the Department to the Air Force Science & Technology Roundtable.

Anthony DeSimone

Member

Anthony (Tony) DeSimone is the senior vice president of enterprise engineering at Lockheed Martin Corporation responsible for engineering execution across 44,000 engineers within the Lockheed Martin business areas and Enterprise Operations. DeSimone is focused on implementing Lockheed’s 1LMX model-based enterprise with new and common processes to advance Engineering & Technology (E&T) excellence in support of 21st Century Security® strategic imperatives. Previously, DeSimone served as the vice president of E&T at Lockheed Martin Rotary and Mission Systems. As the principal technical leader for the RMS business area and its more than 14,000 engineers and scientists, DeSimone focused on creating an all-digital development environment, advancing disruptive technologies, driving superior program performance, and delivering innovative solutions that exceeded customer and company expectations. DeSimone has been recognized for leadership and technical excellence efforts through numerous awards from Lockheed Martin and government agencies including Operation Burnt Frost and the Long Range Discrimination Radar program; and as one of the select industry recipients of the Missile Defense Agency’s prestigious Aegis Ballistic Missile Defense Pathfinder Award. DeSimone is an industry advisor to Drexel University for the College of Engineering and the College of Arts and Sciences, as well as a member of the Drexel President’s Leadership Council. DeSimone received a Ph.D. focused on theoretical physics from Drexel University and an MBA from William and Mary University.

Mary Lynne Dittmar

Member

Mary Lynne Dittmar is president and CEO of Dittmar Associates, a consulting firm, having retired as chief government & external relations officer for Axiom Space in November 2024. There, Dittmar led all corporate activity and strategy across the U.S. government, including the White House, Congress, federal agencies, international trade offices and regulatory management, as well as alt strategic communications of behalf of the company. Prior roles include founder and CEO of the Coalition for Deep Space Exploration, a trade and outreach association representing companies engaged in NASA human spaceflight and space science programs, where Dittmar also advised NASA, Congress, the White House, and industry, serving as a member of the Users' Advisory Group of the National Space Council. Dittmar recently completed serving as industry chair for the FAA’s Space Advisory Rulemaking Committee for Commercial Human Space Flight Safet. Previous work includes serving as senior policy advisor for the International Space Station National Lab, and senior systems engineer and chief scientist for The Boeing Company's International Space Station Program. Dittmar is a Fellow of AIAA, AAS, and Sigma Xi. Dittmar earned a Ph.D. in Human Factors/Cognitive Science from the University of Cincinnati.

Eric H. Ducharme

Member

Eric H. Ducharme (NAE) is the founder of Martlet Engineering, an aerospace consultancy. Ducharme was formerly the chief engineer at GE Aerospace, responsible for product and flight safety; airworthiness, certification, and regulatory compliance; design process and quality; and technical talent development of more than 1,000 subject matter expert engineers. Ducharme has also been responsible for leading various teams at GE, including aeroelastic technology; the development of swept composite fans; the GE90, LEAP, and Passport engine engineering programs; and the Advanced Technology Operation responsible for delivering technologies and architectures for next generation commercial and military flight propulsion. Ducharme was also the vice president for engineering at GE Transportation, responsible for powering GE's global rail, mining, and marine sectors. Ducharme is a member of the National Academy of Engineering and the GE Aerospace Propulsion Hall of Fame, and a fellow of the American Institute of Aeronautics and Astronautics (AIAA), American Society of Mechanical Engineers (ASME), and the Royal Aeronautical Engineering Society. Formerly, Ducharme was a member of the NASA Aeronautics Advisory Committee and the National Academies' Aeronautics Research and Technology Roundtable, and chair of the ASME Industry Advisory Board. Ducharme earned an S.M. and Sc.D. in aeronautics and astronautics from MIT.

Moriba K. Jah

Member

Moriba K. Jah is the director of the Computational Astronautical Sciences and Technologies (CAST) group within the Institute for Computational Engineering and Sciences at The University of Texas at Austin, and an associate professor of Aerospace Engineering and Engineering Mechanics in the Cockrell School of Engineering. Jah holds the Mrs. Pearlie Dashiell Henderson Centennial Fellowship in Engineering and trains a new generation of astrodynamicists and space traffic leaders through research and education at the intersection of engineering, policy, and commercialization. Jah is the co-founder and chief scientist of Privateer Space, and the co-founder and president of Moriba Jah Universal. Jah is an elected member of Scotland's National Academy of Science and Letters as a Corresponding Fellow of the Royal Society of Edinburgh (RSE), the International Academy of Astronautics (IAA), a TED Fellow, a MacArthur "Genius Grant" Fellow, and a fellow of the American Institute of Aeronautics and Astronautics (AIAA), the International Association for the Advancement of Space Safety (IAASS), the AFRL, the AAS and the Royal Astronomical Society (RAS), as well as an IEEE Senior Member, Associate Editor of Elsevier's Advances in Space Research, Acta Astronautica, and Space Safety Engineering Journals. Jah holds a Ph.D. in aerospace engineering sciences from the University of Colorado at Boulder. Jah currently serves on the National Academies Committee on International Security and Arms Control (CISAC) focused on space security issues.

Timothy C. Lieuwen

Member

Timothy C. Lieuwen (NAE) is a Regents' Professor and the David S. Lewis, Jr. Chair in the School of Aerospace Engineering at Georgia Tech, where he also serves as the executive director of the Strategic Energy Institute. Lieuwen is also the founder and chief technology officer of TurbineLogic, an analytics firm working in the gas turbine industry. Lieuwen' s expertise includes research, development, and operation of gas turbines, fuels, and combustion. He has received four patents, all of which are licensed to the gas turbine industry. He is editor-in-chief of the American Institute of Aerospace and Astronautics (AIAA) Progress book series. Lieuwen is a member of the National Academy of Engineering, a fellow of the American Society of Mechanical Engineers and the AIAA, a past chair of the ASME Combustion, Fuels, and Emissions Technical Committee of the American Society of Mechanical Engineers (ASME), and a former associate editor of Combustion Science and Technology, Proceedings of the Combustion Institute, and AIAA Journal of Propulsion and Power. Lieuwen is a recipient of the AIAA Lawrence Sperry Award, the ASME George Westinghouse Gold Medal, and a National Science Foundation CAREER Award. Lieuwen is a current or former member of the Department of Energy's National Petroleum Counsel, the board of governors of Oak Ridge National Lab, and the board of the ASME International Gas Turbine Institute. Lieuwen is a current or former member of four National Academies study committees. Lieuwen received a Ph.D. in mechanical engineering from Georgia Tech.

George T. Ligler

Member

George T. Ligler (NAE) is Professor and Dean's Excellence Chair of Multidisciplinary Engineering at Texas A&M University and the proprietor of GTL Associates, a consultancy that has provided interdisciplinary systems integration/engineering and product management services to over 40 clients on three continents. From August 2018 to joining Texas A&M in early 2022, Ligler was also, on a half-time academic year basis, the Dean's Eminent Professor of the Practice at the University of North Carolina at Chapel Hill/North Carolina State University Joint Department of Biomedical Engineering. Ligler has served as a subject matter expert for over 30 years supporting the Federal Aviation Administration's implementation of both satellite-based navigation and Automatic Dependent Surveillance-Broadcast (ADS-B) as components of the Next Generation Air Transportation System. Ligler is currently co-chair of RTCA Special Committee-159 (Navigation Equipment Using the Global Navigation Satellite System) and is a former founding co-chair of RTCA Special Committee-228 (Minimum Operational Performance Standards for Unmanned Aircraft Systems). Ligler received the RTCA Achievement Award, RTCA's highest award, in both 2006 and 2017 (co-recipient) for his contributions to satellite-based navigation system initiatives, ADS-B, and the development of standards for unmanned aircraft systems. Recognized as a lifetime National Associate of the National Academies in 2014, Ligler has participated in ten National Academies of Sciences, Engineering, and Medicine committees (chairing three) advising the Departments of Transportation, Treasury, and Commerce. Elected to the NAE in 2017, Ligler is a former chair of NAE Section 12, Special Fields and Interdisciplinary Engineering. Ligler holds a D.Phil. in mathematics and computation from the University of Oxford, with his studies supported by a Rhodes Scholarship.

Lester L. Lyles

Member

General Lester L. Lyles (NAE) is an independent consultant. He retired from the U.S. Air Force (USAF) in 2003 as commander of the Air Force Material Command at Wright-Patterson Air Force Base (AFB). General Lyles entered the USAF in 1968 as a distinguished graduate of the Air Force ROTC program. He served in various positions, including program element monitor of the Short- Range Attack Missile at USAF Headquarters (USAF/HQ), special assistant and aide-de- camp to the commander of Air Force Systems Command (AFSC), chief of the Avionics Division in the F-16 Systems Program Office, director of Tactical Aircraft Systems at AFSC headquarters, and as director of the Medium-Launch Vehicles Program and Space-Launch Systemsoffices. General Lyles became the AFSC headquarters assistant deputy chief of staff for requirements in 1989 and deputy chief of staff for requirements in 1990. In 1992, he became vice commander of the Ogden Air Logistics Center at Hill AFB. He served as commander of the center until 1994, when he was assigned to command the Space and Missile Systems Center at Los Angeles AFB. In 1996, General Lyles became the director of the Ballistic Missile Defense Organization. In 1999, he was assigned as vice chief of staff at USAF/HQ. He served on the NASA Advisory Council. His numerous awards include the Defense Distinguished Service Medal, the Astronautics Engineer of the Year from the National Space Club, the National Black Engineer of the Year Award, Honorary Doctor of Laws from New Mexico State University, and from Urbana University ; NASA's Distinguished Public Service Medal for serving on the President's Commission on Implementing the U.S. Space Exploration Policy. In 2009, General Lyles served on the Augustine Space Committee for developing the agenda for NASA’s human spaceflight missions. He served on the President’s Intelligence Advisory Board in the White House from 2009-2013, and , the State Department’s International Security Advisory Board from 2013-2017. Gen. Lyles currently chairs the NASA Advisory Council. He received his B.S. in mechanical engineering from Howard University and his M.S. in mechanical engineering from the Air Force Institute of Technology Program at New Mexico State University.

Pamela A. Melroy

Member

Pamela A. Melroy is an independent consultant. Melroy is the former deputy administrator of NASA and a retired NASA astronaut and U.S. Air Force test pilot. Melroy served as the NASA Deputy Administrator from 2021-2025. Melroy is one of two women to command the Space Shuttle, 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, Melroy flew three assembly missions to the International Space Station: STS-92, STS-112, and commanded STS-120. Also, while at NASA, Melroy was the lead for the reconstruction of the Columbia crew module, and was deputy program manager of the Columbia Crew Survival Investigation. In between her terms at NASA, Melroy served as deputy program manager for space exploration initiatives at Lockheed Martin, supporting the Orion Program; director of field operations and acting deputy associate administrator for commercial space transportation at the Federal Aviation Administration; and deputy director of the Tactical Technology Office at DARPA, overseeing multiple major air and space technology development programs. Melroy received a B.A. in physics and astronomy from Wellesley College and an M.S. in earth and planetary science from the Massachusetts Institute of Technology. Melroy was chair of the Aeronautics and Space Engineering Board in 2021 before being selected as the NASA Deputy Administrator.

Tom G. Reynolds

Member

Tom G. Reynolds is the leader of the Air Traffic Control & Weather Systems Group at MIT Lincoln Laboratory. Reynolds leads a range of programs that are developing advanced technologies to enhance the safety and efficiency of air transportation. These include tools to improve air traffic management during adverse weather, integration of new vehicle types into the national airspace system, airport surface congestion management techniques, and optimized flight procedures to mitigate environmental impacts. Reynolds is a Fellow of the Royal Aeronautical Society, an associate fellow of the American Institute of Aeronautics and Astronautics (AIAA), a member (and ex-chair) of the AIAA Aircraft Operations Technical Committee, and has provided expert testimony on efficient use of airspace to the U.K. House of Commons Transport Committee. Prior to joining MIT Lincoln Laboratory, Reynolds worked on the research staff at MIT and the University of Cambridge, and in industry at British Airways Engineering and the U.K. Defence Evaluation and Research Agency. Reynolds was a recipient of the AIAA Orville and Wilbur Wright Graduate Award and a U.K. Fulbright Scholar. Reynolds has authored over 85 peer-reviewed conference and journal papers, as well as seven book chapters, all in the aerospace field. Reynolds received a Ph.D. in aeronautics and astronautics from MIT.

Michael K. Sinnett

Member

Michael K. Sinnett is the senior vice president of product strategy, product development & development programs for Boeing Commercial Airplanes. Previously, Sinnett was the chief engineer of the 787 during flight test, certification, and initial entry into service. Sinnett is responsible for commercial airplane research and development, including technology development that leads to new and improved airplanes and airplane production systems. Sinnett also leads the Boeing ecoDemonstrator program, which provides a series of flying platforms for advancing aerospace technologies with external partners such as NASA, the Federal Aviation Administration, the Japan Aerospace Exploration Agency, and the German Aerospace Center (DLR). Sinnett currently serves on the Board of Directors of HRL Laboratories and Wisk Aero and has previously served on the Board of Directors of Aerion Supersonic. Sinnett is a member of the National Academy of Engineering, a fellow of the Royal Aeronautical Society, a fellow of the American Institute of Aeronautics and Astronautics, a recipient of the Elmer A. Sperry Award of the American Society of Mechanical Engineers, and an FAA-licensed private pilot. Sinnett received an M.S. in aerospace engineering from the University of Missouri at Rolla.

Anthony M. Waas

Member

Anthony M. Waas is the Fulton Chair Professor of Aerospace and Mechanical Engineering and Director of the School for Engineering of Matter, Transport and Energy (SEMTE) at Arizona State University (ASU), Tempe, AZ; and at the University of Michigan Waas is the Felix Pawlowski Collegiate, emeritus, Professor of Aerospace Engineering, emeritus and the Richarad A. Auhll Department Chair of Aerospace Engineering, emeritus. Prior to that, Waas was the Boeing Egtvedt Endowed Chair Professor and department chair in the William E. Boeing Department of Aeronautics and Astronautics at the University of Washington (UW), Seattle, and the director of the Composite Structures Laboratory at the University of Michigan. Waas' current research interests are recyclable composite materials, robotically manufactured lightweight structures, including in-space manufactured structures, computational modeling of composite aerostructures, 3D printed lightweight structures, damage tolerance of composite structures, affordable textile composites, hydrogen storage for mobility, and data science applications in modeling of materials and structures. Waas is a fellow of the American Institute of Aeronautics and Astronautics (AIAA), the American Society of Mechanical Engineering (ASME), the American Society for Composites (ASC), the American Academy of Mechanics (AAM) and the Royal Aeronautical Society, UK. Waas is a recipient of several best paper awards, the AIAA/ASME SDM award, the AAM Jr. Research Award, the ASC Outstanding Researcher Award, and several distinguished awards from the University of Michigan, including the Stephen S. Attwood award for Excellence in Engineering, one of the highest honors for an Engineering faculty member at the University of Michigan. Waas received the AIAA-ASME-ASC James H. Starnes, Jr. Award, for seminal contributions to composite structures and materials and for mentoring students and other young professionals. Waas is the recipient of the AIAA ICME Prize, the ASME Warner T. Koiter Medal, the AIAA Dryden Lecture in Research presented at the International Scitech Conference, and the CT Sun Medal from the American Society of Composites. Waas is a member of the Washington State Academy of Sciences and the European Academy of Sciences and Arts. Waas earned a Ph.D. in aeronautics and applied mathematics from Caltech.

Karen E. Willcox

Member

Karen E. Willcox is director of the Oden Institute for Computational Engineering and Sciences, associate vice president for research, and professor of Aerospace Engineering and Engineering Mechanics at The University of Texas at Austin; and external professor at the Santa Fe Institute. Before joining the Oden Institute Willcox was a professor at the Massachusetts Institute of Technology, serving as the founding co-director of the MIT Center for Computational Engineering and the associate head of the MIT Department of Aeronautics and Astronautics. Prior to joining the MIT faculty, Willcox worked at Boeing Phantom Works with the Blended-Wing-Body aircraft design group. Willcox's research has produced scalable computational methods for the design of next-generation engineered systems, with a particular focus on scientific machine learning, reduced-order modeling, uncertainty quantification, and predictive digital twins. Willcox is a member of the National Academy of Engineering, fellow of the Society for Industrial and Applied Mathematics, fellow of the American Institute of Aeronautics and Astronautics, and fellow of the US Association for Computational Mechanics. Willcox received the 2023 J.T. Oden Medal and the 2024 Theodore von Karman Prize. Willcox received a Ph.D. in aeronautics and astronautics from MIT. Willcox serves as co-chair of the Horizon Scanning and Emerging Technology for Department of War Standing Committee and served as the co-chair of the Board on Mathematical Sciences and Analytics.