Committee on Planetary Protection (CoPP)

Committee

David P. Fidler

Co-Chair

DAVID P. FIDLER is an emeritus professor of law at the Indiana University Maurer School of Law. He works on international law and global governance issues across many policy areas, including cyberspace, global health, outer space, national security, environmental protection, terrorism, and weapons of mass destruction. He is the recipient of a Fulbright New Century Scholar Award. Fidler holds degrees in international relations and law from the University of Oxford and earned a J.D. from Harvard Law School. Fidler has served as a member of the National Academies Committee to Review Planetary Protection Policy Development Processes, and the Committee on the Review of the Report of the NASA Planetary Protection Independent Review Board.

Lisa M. Pratt

Co-Chair

Lisa M. Pratt is Emeritus Provost Professor in the Department of Earth and Atmospheric Sciences at Indiana University, Bloomington. Pratt served as NASA’s Planetary Protection Officer from 2017 to 2021, leading the development of engineering and technical standards for the biological cleanliness of outbound and inbound spacecraft. She was a member of the Mars Sample Return Strategy Review in 2024. Pratt's career began as a research geologist in the United States Geological Survey studying the organic geochemistry of petroleum source rocks. Indiana University recruited Pratt in 1987 as a research and teaching professor, serving for 30 years in the Department of Earth and Atmospheric Sciences. Pratt used ratios of stable sulfur isotopes to reveal metabolic activity in deep-groundwater samples from South African and Canadian gold mines and from surface-water samples in ice-covered lakes along the margin of the Greenland ice sheet. Pratt's scientific impact has been recognized by a NASA Exceptional Achievement Medal in 2020, the President’s Medal from Indiana University in 2018, appointment as a Fellow of the Geological Society of America in 2010, and selection as a Phi Beta Kappa Visiting Scholar from 2009 to 2011. Pratt earned a PhD in geology from Princeton University.

Amal Amer

Member

AMAL AMER is a professor and vice chair for Translational Research at The Ohio State University, Department of Microbial Infection and Immunity. Amer has more than 25 years of experience in the effect of stress and the environment on microbiological biofilms, extracellular matrix production, and antibiotic resistance. The enhanced biofilm resilience observed in space provides a risky source of infection and contamination. Thus, spaceflight-associated biofilm formation represents not only a risk to astronaut health but also a unique experimental platform to dissect gravity-dependent regulation of bacterial contamination and innate immune defense mechanisms. Amer's translational research expertise translates to space exploration by studying how microbes persist and form biofilms in closed habitats, how stressors alter microbial behavior and crew immunity, and how to set meaningful monitoring and intervention thresholds to reduce contamination and infection risk. Amer is a fellow of the American Academy of Microbiologists, and recipient of the Ohio State University Distinguished Scholar Award. Amer received an M.D. from Cairo University in Egypt and a Ph.D. in microbiology and immunology from the University of Western Ontario, Canada.

Emily Craven

Member

EMILY CRAVEN is the director of Global Sterility Assurance at Boston Scientific, having responsibility for end-to-end microbiological quality and sterility associated with a broad portfolio of medical devices. Prior to the current role at Boston Scientific, Craven worked in the design, validation and applications development of radiation sterilization equipment, including gamma, electron beam and x-ray irradiation systems. Craven is the convenor of the ISO working group responsible for standards on radiation sterilization, ISO TC198 / WG2, and is actively involved in standards development relating to sterilization processes, assurance of sterility, and microbiological methods through ISO, AAMI, and ASTM International. A recognized industry leader in sterilization, Craven has co-chaired workshops and conferences, authored or co-authored presentations, papers, and book chapters on radiation applications, sterility assurance, standards development, process control and mathematical modelling. Through work in the Kilmer Process Optimization and Modalities team, Craven was responsible for two collections of publications and a webinar series focused on finding sustainable improvement to current sterilization practices as well as information and education on novel methods. Craven holds a BSc Eng in engineering physics from Queen's University in Canada and is a licensed Professional Engineer.

Kevin De-Sean Kamau Dillon

Member

KEVIN D. S. K. DILLON isa systems engineer at Intuitive Machines designing, evaluating, and analyzing air vehicle systems for both commercial and military programs. Additionally, Dillon has experience with working on commercial lunar lander projects and their associated payloads including the study of lunar regolith to mitigate lunar dust impacts to spacecrafts, rovers, and astronauts in collaboration with NASA. Dillon has experience with supporting the Air Force Research Lab to develop a nuclear-powered satellite that will survive the lunar night and adjust orbital position on command. Dillon has participated in the National Society of Black Engineers Aerospace Special Interest Group holding leadership positions including lead researcher for a feasibility study on spaceports in the east African region. As part of the legal advisory council of the National Space Society, Dillon authored position papers on planetary defense and presented to the United Nations on Space Based Solar Power. Dillon earned a B.S. in aerospace engineering and mechanical engineering from the Missouri University of Science and Technology, an M.S. in systems engineering from Southern Methodist University, and a J.D. from Saint Louis University School of Law.

Asha M. George

Member

ASHA M. GEORGE is director of the Bipartisan Commission on Biodefense at the Atlantic Council. Previously, George served in the U.S. House of Representatives as subcommittee staff director and senior professional staff at the Committee on Homeland Security. George also served in the U.S. Army as an active-duty military intelligence officer and paratrooper. George is a decorated Desert Storm Veteran. George is a recognized national security, public health security, and biodefense expert. George has written, and provided input to, congressional legislation, having authored the WMD Prevention and Preparedness Act of 2010. George serves as chair of the Sandia National Laboratories Bioscience External Review Board, as a member on the Homeland Intelligence Advisory Board, Science and Security Board of the Bulletin of the Atomic Scientists, and on the Advisory Board of the International Spy Museum. George is co-chair of the National Academies Forum on Medical and Public Health Preparedness for Disasters and Emergencies. George holds a Doctorate in Public Health from the University of Hawai’i and is a graduate of the Harvard University National Preparedness Leadership Initiative.

Andrew Horchler

Member

ANDREW HORCHLER is Astrobotic's chief research scientist and leads the development of robotics hardware and software for advanced applications that push the boundaries of what is possible in space. Horchler serves as principal investigator on R&D contracts and technical lead on space robotics technology development projects, including a navigation sensor for precision landing flown on Astrobotic's first lunar mission, a LiDAR hazard detection sensor that will safely land Astrobotic's next mission on the South Pole of the Moon, and a sensor system for in-space space situational awareness (SSA). Horchler has developed more than a dozen mobile robot platforms over the past 20 years and has published over 70 papers, proceedings, and patents. Horchler's robots and sensors have been tested on simulated lunar regolith at NASA GRC's SLOPE laboratory, on tortuous rubble piles and desert terrain for NASA and NIST field tests and have flown in caves, icy lava tubes, and over glaciers. Horchler serves on the Advisory Board for Pitt Space and supports the Consortium for Space Mobility and ISAM Capabilities (COSMIC). Horchler holds a Ph.D. from Case Western Reserve University in mechanical engineering.

Robert E. Lindberg, Jr.

Member

ROBERT E. LINDBERG, Jr., is an independent consultant with over forty years of experience as an accomplished aerospace executive and entrepreneur that spans government, aerospace industry, start-ups, academic, and non-profit sectors. Lindberg's background and experience includes spacecraft and launch vehicle design; entry, descent and landing; and planetary protection. Lindberg has served as vice president of two small space companies: Moon Express and Vector Launch. From 2003 to 2012 Lindberg was the president and executive director of the National Institute of Aerospace (NIA). Prior to co-founding NIA, Lindberg was senior vice president with Orbital Sciences Corporation (now a division of Northrop Grumman Corp). Lindberg is a former member of the NASA Advisory Council Science Committee and chaired its Planetary Protection Subcommittee. Lindberg is affiliated with the American Institute of Aeronautics and Astronautics (fellow) and the American Astronautical Society (fellow and past president). Lindberg received numerous honors including the Egleston Medal from Columbia University and the Engineering Achievement Award from the University of Virginia. Lindberg has served on committees and panels for NASA, the National Security Space Architect, the Federal Aviation Administration, and the International Council on Science's Committee on Space Research (COSPAR). Lindberg holds a doctorate in mechanical engineering from Columbia University.

Margarita M. Marinova

Member

MARGARITA MARINOVA is a planetary scientist and aerospace engineer, currently working at Relativity Space. Marinova's work has focused on improving rocket capabilities and reusability, developing commercial lunar mission concepts, studying extreme environments on Earth especially as analogs for planetary science and exploration, studying Mars and the Moon, and mentoring space startups. Marinova has worked at Airbus Space Propulsion in engine nozzle research and development; at NASA Ames Research Center as a planetary scientist studying Mars and extreme environments on Earth, including the Dry Valleys of Antarctica, the High Arctic, and the Sahara Desert in Egypt; at SpaceX for seven years as a senior engineer and in leadership positions on reusability, Falcon 9 Full Thrust development, and Starship mission architecture and vehicle design; and at Project Kuiper as a senior manager for integration and test. Marinova served on the National Academies Committee to Review NASA's Planetary Protection Independent Review Report. Marinova earned a Ph.D. in planetary science from Caltech.

Gerald E. McDonnell

Member

GERALD E. MCDONNELL is the vice president for Microbiological Quality & Sterility Assurance at Johnson & Johnson. McDonnell manages a global team of experts in the areas of microbiology and contamination control including cleaning, disinfection, preservation, sterilization, biosafety, device processing and aseptic manufacturing. He has over 30 years experience in various scientific and clinical services roles. McDonnell has published over 190 publications and patents, including the books Block's Disinfection, Sterilization, and Preservation, A Practical Guide to Decontamination and Antisepsis, Disinfection, and Sterilization; and has been the editor and referee for peer-reviewed journals and publications. He is a member of U.S. national and international working groups for standard development, including Association for the Advancement of Medical Instrumentation (AAMI), American Society for Testing and Materials (ASTM), International Organization for Standardization (ISO) and European Standards (EN) committees. Dr. McDonnell is a past convenor for European Committee for Standardization Technical Committee Sterilizers for medical purposes Working Group Performance requirements and testing for washer-disinfectors (CEN/TC102 WG8) and the past co-chair, Sample Safety Assessment Advisory Team for the NASA/JPL MARS Mission. He is board director and treasurer at AAMI (Association for the Advancement of Medical Instrumentation), as well as a member of the American Society of Microbiology, Parenteral Drug Association, Society for Applied Microbiology (recipient of the Denver Russell Memorial Award) and the Hospital Infection Society. McDonnell earned a B.Sc. in Medical Laboratory Sciences from the University of Ulster and a Ph.D. in microbial genetics from Trinity College Dublin.

Jill Mikucki

Member

JILL MIKUCKI is a professor of microbiology at the University of Tennessee, Knoxville. Mikucki is a polar microbial ecologist who studies cryosphere ecosystems with a focus on subglacial environments. Mikucki is particularly motivated by multidisciplinary collaborations for the clean access and exploration of subglacial environments. Mikucki's research interests include the ecophysiology of microbial extremophiles, microbial interactions and microbial community structure and function. Mikucki's work lends itself to how terrestrial extremophiles can inform our understanding of potential exobiological ecologies. Mikucki has participated in numerous Antarctic field projects including the sampling of Subglacial Lake Whillans and Blood Falls. Mikucki received a PhD. in Antarctic microbial ecology from Montana State University.

Kenneth Olden

Member

KENNETH OLDEN (NAM) is the retired Director of U.S. Environmental Protection Agency's National Center for Environmental Assessment (2012-2016) and National Institutes of Health's National Institute of Environmental Health Sciences and National Toxicology Program (1991-2005). In 1985, Olden was appointed director of the Howard University Cancer Center and chair of the Department of Oncology. From 2008-2012, Olden served as founding dean of the School of Public Health at the City University of New York (CUNY). Olden has published extensively in peer-reviewed literature, chaired/co-chaired more than 250 symposia, and has been the recipient of numerous honors and awards including: recipient of the Calvert Award (2002) and the Sedgwick Medal (2005) by the American Public Health Association; the Julius B. Richmond award in 2005 by the Harvard T.H Chan School of Public Health; the Sackler Prize by Research America in 2014; the creation of the Kenneth Olden Distinguish Lecture Series by the NIEHS/NIH in 2020; awarded the Innovation Prize by the Health and Environmental Science Institute in 2021, and the Adam Yarmolinsky Medal by the National Institute of Medicine in 2023, the Trailblazing Award by the NIH in 2024. Olden is a member of the National Academy of Medicine and earned a Ph.D. in cell and molecular biology from Temple University. Olden was a member of the National Academies Committee on the Review of Planetary Protection Policy Development Processes.

Caryn Schenewerk

Member

CARYN SCHENEWERK is the Chief Policy Officer at Vast and president of CS Consulting and a respected leader in navigating the complex regulatory and policy landscape for the spaceflight industry. Through CS Consulting, Schenewerk provides expert guidance to clients on regulatory and policy engagement with all levels and branches of government. Schenewerk co-authored a space law textbook, International Space Law and Space Laws of the United States and is honored to share expertise as an adjunct professor of Space Law at Georgetown University Law Center. Prior to founding CS Consulting, Schenewerk served as the vice president for Regulatory and Government Affairs at Relativity Space, and helped the company launch the world's first 3-D printed rocket. Schenewerk started a career in aerospace at SpaceX, spending a decade supporting commercial space operations, regulatory approvals, facility expansion, and economic development. Schenewerk has an extensive track record of interacting with U.S. government agencies such as the FAA's Office of Commercial Space Transportation, NASA and the U.S. Space Force in support of launch and recovery operations. Schenewerk earned a J.D. from the University of Texas School of Law.

Gerhard H. Schwehm

Member

GERHARD SCHWEHM has been an independent consultant since retiring from the European Space Agency (ESA) in 2014. Schwehm was the deputy project scientist for the Giotto Mission to comet Halley, project scientist for the Giotto Extended Mission and ESA's Rosetta Mission, and mission manager after the launch in 2004. Schwehm served as head of the Planetary Missions Division at ESA-ESTEC, Noordwijk, and head of the Solar System Science Operations Division at ESA-ESAC, Madrid. Schwehm's background is in planetary science, especially the physics of comets and interplanetary dust. Schwehm has been a co-investigator on numerous dust detector experiments, starting with the US-German Helios 1,2 missions up to NASA/ESA/ASI Cassini-Huygens. Schwehm was member of the ESA Planetary Protection Working Group and was an ESA representative in the Planetary Protection Subcommittee of the NASA Advisory Council Science Committee. Schwehm is a member of the International Academy of Astronautics and chairs its Commission 1 (Basic Sciences). Schwehm has served on committees and panels for ESA, NASA, COSPAR and DLR. Schwehm received a Ph.D. in applied physics (extraterrestrial physics) from Ruhr-University Bochum, Germany.

Emily Pui-Yee Seto

Member

EMILY P. SETO is the manager of Planetary Protection, Contamination Control, and Research and Development at Honeybee Robotics. Seto’s research focuses on science and technology development for future sample return missions and lunar in-situ resource utilization. Seto is currently the lead PP/CC engineer for various mission payloads, including The Regolith and Ice Drill for Exploration of New Terrains (TRIDENT) slated for lunar deployment, Drill for Acquisition of Complex Organics (DrACO) for the Dragonfly Mission to Titan, and Pneumatic Sampler for the Martian Moon eXploration Mission (MMX) to Phobos and Deimos. Prior to joining Honeybee, Seto worked at NASA Jet Propulsion Laboratory supporting the Mars2020, Europa Clipper, and Mars Sample Return campaign. Seto designed studies to investigate extreme organisms to inform strategies for planetary protection implementation and was instrumental in the development of a novel prion biology indicator to support the Mars Sample Return campaign. Seto earned an M.S. in microbiology at the University of Nottingham.

Jennifer L. Talley

Member

JENNIFER TALLEY currently serves as the program officer for Space Biosciences at the Air Force Office of Scientific Research (AFOSR). In this role, Talley defines and manages the "Life Sciences in Space" portfolio, guiding high-risk basic research in biomanufacturing, extremophile resilience, and In-Situ Resource Utilization (ISRU) to support United States Space Force requirements. Previously, Talley served as a senior research biological scientist at the Air Force Research Laboratory (AFRL), led bio-inspired technology research, and was a Technology Advisor for Air Force Futures at the Pentagon. Talley’s primary technical expertise bridges fundamental biology and engineering, specifically regarding bio-hybrid robotics, autonomous navigation in turbulent environments, and the application of synthetic biology to space logistics. Talley holds a patent for a bio-hybrid autonomous air vehicle and has been recognized with the 2023 Research Excellence Award and the 2017 Outstanding Mentor Award. Talley received a Ph.D. in biology from Case Western Reserve University. Talley is also a former National Research Council Postdoctoral Fellow.