

Astro2020: Panel on Electromagnetic Observations from Space 2

Committee

Steven M. Kahn

Chair

STEVEN M. KAHN is Cassius Lamb Kirk Professor in the Natural Sciences and professor of particle physics and astrophysics at Stanford University. He is also the director of the Large Synoptic Survey Telescope (LSST) project at AURA and SLAC National Accelerator Laboratory. Kahn's research interests include the LSST that will enable a wide array of scientific investigations ranging from studies of moving objects in the solar system to the structure and evolution of the universe as a whole. Prior to joining Stanford University, he held numerous positions at Columbia University, including the I.I. Rabi professor of Physics, professor of physics, and assistant professor of physics. In addition, Kahn was a Center Postdoctoral Research Fellow at the Harvard- Smithsonian Center for Astrophysics. He is currently a member of both the editorial board for the Cambridge Observing Handbooks for Research Astronomers and the editorial board for the Cambridge Contemporary Astrophysics Series at the Cambridge University Press. In addition, Kahn is a member of the external advisory committee in the particle physics division of the department of physics at the University of Oxford, co-chair of the external advisory committee of the Giant Magellan Telescope, and an outside member of the Astro E Science Working Group run by NASA and ISAS. He is affiliated with the AAS High Energy Astrophysics Division, the APS Astrophysics Division, the AAAS, the American Association of University Professors, and the American Academy of Arts and Sciences. Kahn is the recipient of many awards including fellowships to the American Association for the Advancement of Science, the American Academy of Arts and Sciences, and the American Physical Society. In addition, he received the Andrew R. Mikelson Prize in Physics. Kahn received his Ph.D. in physics from the University of California at Berkeley. He has served on the Academies' Astro2010 Panel on Particle Astrophysics and Gravitation, the Committee on AMO2010 – An Assessment of and Outlook for Atomic Molecular and Optical Science, and the Committee on Review of USAF-Supported Astronomical Research.

Lisa Barsotti

Member

LISA BARSOTTI is a principal research scientist with the Massachusetts Institute of Technology in the Kavli Institute for Astrophysics and Space Research, and part of the LIGO Laboratory. Her research interests include strong gravity and gravitational radiation, gravitational wave detection, and quantum measurements. In particular, she led the upgrade to the Advanced LIGO detectors to use squeezed vacuum states. She is a fellow of the APS and she has been awarded the 2019 New Horizons in Physics Prize. Dr. Barsotti earned her Ph.D. in applied physics from Pisa University, Italy. She has not previously served on an Academies' committee.

Allison Barto

Member

ALLISON BARTO is a senior program manager at Ball Aerospace. She began her career supporting development of the Advanced Camera for Surveys (ACS) and Cosmic Origins Spectrograph (COS) instruments for the Hubble Space Telescope and most recently spent 17 years supporting the design, build, and test of the James Webb Space Telescope (JWST) as both an optical systems engineer and program manager for the Ball Aerospace effort. This included the optical design, delivery of all opto-mechanical mirror components and electronics for JWST, cryogenic instrument radiators, and the wavefront sensing and control algorithms used to phase the telescope on orbit. In addition to program roles, Barto led the systems engineering team for the NASA In-Space Assembled Telescope study and serves on the Management Advisory Committee for the European Southern Observatory's Extremely Large Telescope. She is actively involved with the International Society for Optics and Photonics (SPIE) where she currently serves as chair of the Symposia Committee and sits on the Strategic Planning Committee. She is recipient of the 2014 Women in Aerospace Achievement Award for her technical contributions to the JWST optical verification program and the 2017 Aviation Week Program Excellence Award for her work on JWST's cryogenic electronics system. She earned her B.S. in physics from Harvey Mudd College. She has not previously served on an Academies' committee.

Michael Bay

Member

MICHAEL BAY is president and chief engineer of Bay Engineering Innovations. He has over 41 years of experience in systems design and space flight systems engineering on over 20 NASA space missions. He has extensive experience in leading system and detailed design; development, manufacturing; testing; verification; mission planning; launch site and mission operations; and anomaly investigation and resolution activities, both for pre-flight testing and in-orbit activities. Bay is a member of the Avionics Technical Discipline Team of the NASA Engineering and Safety Center (NESC) and a participant in the NESC's Systems Engineering Technical Discipline Team. Mr Bay also led the systems engineering portion of the NESC's Technical Support to the National Highway Traffic Safety Administration (NHTSA) on the Reported Toyota Motor Corporation (TMC) Unintended Acceleration (UA) Investigation. Mr. Bay received a NASA Public Service Medal for Leadership in Systems Engineering, and NASA's Distinguished Public Service Medal. He was the first recipient of the Institute of Electrical and Electronics Engineers' (IEEE) Judith A. Resnik Field Award for "engineering solutions to urgent spacecraft testing problems and for developments in on-orbit servicing." Bay received his B.S. in computer science from Loyola University in Maryland. He has previously served on an Academies' committee.

Martin Elvis

Member

MARTIN ELVIS is a senior astrophysicist at the Harvard-Smithsonian Center for Astrophysics. Previously, he was the science data system group leader at the Chandra X-Ray Center. His research interests include near-Earth asteroid detection and properties, and observations and theory of active galactic nuclei. He is a highly cited astrophysicist (over 30,000 peer citations) who has published some 400 refereed papers. He is a fellow of the AAAS, a member of the Aspen Center for Physics, and is past-chair of the Hubble Space Telescope Users' Committee, and of the High Energy Division of the AAS. Asteroid 9283 Martinelvis is named after him. Dr. Elvis earned his Ph.D. in X-ray astronomy from Leicester University. He has previously served on an Academies' committee.

Charles J. Hailey

Member

CHARLES J. HAILEY is the Pupin Professor of Physics and co-director of the Columbia Astrophysics Laboratory at Columbia University. His research interests are observational high energy astrophysics and experimental particle astrophysics. He chairs the Galactic Plane Survey Working Group on the Nuclear Spectroscopic Telescope Array (NuSTAR) mission, and coordinates the NuSTAR legacy observations of the Galactic Center and of TeV gamma-ray sources in conjunction with the Very Energetic Radiation Imaging Telescope Array System (VERITAS) and the High-Altitude Water Cherenkov Gamma-Ray Observatory (HAWC). He is the principal investigator of the General Antiparticle Spectrometer (GAPS) experiment, a balloon-based search for dark matter. He is a member of the American Astronomical Society (AAS) and the High Energy Astrophysics Division of the American Physical Society (APS). Dr. Hailey earned his Ph.D. in physics from Columbia University. He has not previously served on an Academies committee.

Chryssa Kouveliotou

Member

CHRYSSA KOUVELIOTOU (NAS) is a professor of astrophysics in the Department of Physics at the George Washington University (GWU), where she built and leads APSIS (Astronomy, Physics and Statistics Institute of Sciences) focusing on multiwavelength time domain astronomy, including data from space (e.g., Fermi, Swift, XMM, Chandra, NuSTAR, HST) and ground-based observatories (e.g., VLA, LOFAR, WSRT, VLT, Gemini). Prior to GWU, she was a senior technologist (ST) for High-Energy Astrophysics at NASA's Marshall Space Flight Center. Her research interests focus on high-energy astrophysical transients, in particular gamma ray bursts and magnetars (which she discovered in 1998); she has also published papers in X-ray binaries, solar flares and merging galaxy clusters. Dr. Kouveliotou has been a Co-Investigator of BATSE/CGRO, Fermi/GBM; she is currently an affiliated scientist of Swift and participates in two working groups of ESA's ATHENA mission. She is the recipient of the Descartes Prize, the Rossi and Heinemann Prizes, and the NASA Exceptional Service Medal. She holds two honorary degrees from Sussex University and the University of Amsterdam; she is an APS and AAAS Fellow. She is a member of the National Academy of Sciences, the American Academy of Arts and Sciences, a foreign member of the Royal Dutch Academy of Sciences, and a corresponding member of the Athens Academy, Greece. She is a fellow of the American Association for the Advancement of Science and serves on its executive council. In 2015, the Greek Government awarded her the Commander of the Order of the Honor medal, for excellence in science. She has served on the Academies Committee on Astronomy and Astrophysics and the Committee on Exoplanet Science Strategy, and chaired the NASA/Astrophysics Division Roadmap of the next three decades. She is a member of the ExCom of the NAS/Space Studies Board and the AURA Board. She has served as the AAS/HEAD Chair, AAS/Vice President, and APS/DAP Chair. She earned her Ph.D. in astrophysics from the Technical University of Munich in Germany.

Charles R. Lawrence

Member

CHARLES R. LAWRENCE is the chief scientist for astronomy and physics at the Jet Propulsion Laboratory. He is the project scientist for the U.S. Planck mission and deputy project scientist for the Spitzer Space Observatory. His research interests include measurement and analysis of the cosmic microwave background to understand the geometry and content of the Universe, extragalactic radio sources, and gravitational lensing. He is the recipient of two Exceptional Achievement Medals, two Outstanding Leadership Medals, and a Distinguished Public Service Medal, all from NASA, and was part of the Planck team awarded the Gruber Prize in Cosmology. He has been a member of the AAS since 1983. Dr. Lawrence earned his Ph.D. in physics from the Massachusetts Institute of Technology. He has not previously served on Academies' committee.

S. Harvey Moseley, Jr.

Member

S. HARVEY MOSELEY JR. is vice president for engineering at Quantum Circuits, Inc. He has long experience with complex systems operating at cryogenic temperatures. He was a key member of the Cosmic Background Explorer science and development team, whose leaders Mather and Smoot won the 2006 Nobel Physics prize for its groundbreaking measurements of the early universe. He invented and led the advance of cryogenic X-ray microcalorimeters, which are central to the scientific capability of current and future X-ray astrophysics missions. He led the creation of microshutter arrays that provide multi-object spectroscopy on JWST. He has received the Joseph Weber prize of the AAS, the George Goddard Prize of the International Society of Optics and Photonics (SPIE), and was conferred the rank of Distinguished Senior Professional by President Obama. He earned his Ph.D. in astronomy and astrophysics from the University of Chicago. He has not previously served on an Academies' committee.

Reshmi Mukherjee

Member

RESHMI MUKHERJEE is the Helen Goodhart Altschul Professor of Physics and Astronomy at Barnard College. Mukherjee's research interests are in high-energy astrophysics and astroparticle physics. She uses ground-based atmospheric Cherenkov telescopes to study galactic and extragalactic high-energy gamma-ray sources. One of her current projects is VERITAS, a ground-based gamma-ray observatory. Mukherjee's research also involves the development of next-generation telescope instrumentation for the Cherenkov Telescope Array (CTA). She earned her Ph.D. in physics from Columbia University. She has not previously served on an Academies' committee.

Lyman A. Page, Jr.

Member

LYMAN A. PAGE, JR. (NAS) is the James S. McDonnell Distinguished University Professor in Physics at Princeton University. His primary research is on measurements of the cosmic microwave background (CMB) from ground-based, balloon-borne, and satellite platforms with high-electron mobility transistor (HEMT) amplifiers, superconductor-insulator-superconductor (SIS) mixers, and bolometers. Page's team first established the existence of a characteristic angular scale in the data, indicating the universe is spatially flat. He is one of the original co-investigators on the Wilkinson Microwave Anisotropy Probe satellite, whose first-year results provided precision measurements of the universe. Page was also the founding director of the Atacama Cosmology Telescope project. He received a Ph.D. in physics from the Massachusetts Institute of Technology. He has previously served on an Academies committee.

Gordon J. Stacey

Member

GORDON J. STACEY is a professor of astronomy and director of undergraduate studies at Cornell University. His research interests center on studies of star formation and its interplay with the interstellar medium across cosmic time. These studies have focused on far-infrared and submillimeter wavelength fine-structure and rotational line emission from abundant atoms, ions, and molecules. Current projects include fine-structure line studies of galaxies both locally and at high redshift, with the Field-Imaging Far-Infrared Line Spectrometer for the Stratospheric Observatory for Infrared Astronomy (SOFIA), the Herschel and Spitzer archives, ALMA, and his ZEUS-2 spectrometer on APEX. Dr. Stacey also is collaborating with NASA Goddard Space Flight Center in the construction of the HIRMES spectrometer for SOFIA, which focuses on protoplanetary disk studies and is constructing an imaging spectrometer for use on Cornell's CCAT-prime telescope. His group is also designing and fabricating new Fabry-Perot mirror technologies. He is an AAS and IAU member and has served on numerous national and international review panels. Dr. Stacey earned his Ph.D. in astronomy from Cornell University. He has previously served on an Academies' committee.