

Astro2010 Panel on Optical and Infrared Astronomy from the Ground

Committee

Patrick S. Osmer

Chair

Dr. Patrick S. Osmer is Vice Provost for Graduate Studies and Dean of the Graduate School at The Ohio State University since 2006. Professor Osmer is an authority on the evolution of distant quasars and their relation to their host galaxies. He came to Ohio State as Professor and Chair of the Department of Astronomy in 1993. In 2004, he was named Distinguished Professor of Mathematical and Physical Sciences. Professor Osmer was previously at the National Optical Astronomy Observatory in Tucson, Arizona, where he had been a member of the scientific staff from 1986 to 1993 and deputy director from 1988 to 1993. He also served as project scientist for the national 8-m telescopes project, which subsequently evolved into the international Gemini telescopes project. As interim project scientist for Gemini, he led the development of the science requirements for the international partners. From 1969 to 1986 Professor Osmer was on the scientific staff of the Cerro Tololo Inter-American Observatory (CTIO) in La Serena, Chile, and served as director of the observatory and head of mission from 1981 through 1985. During that time, CTIO completed the construction of and brought into operation the Blanco 4-m Telescope, then the largest telescope in the southern hemisphere. Osmer's recent national service activities include chairing the search for the Director of the National Optical Astronomy Observatory, chairing the search for the Editor-in-Chief of the Astrophysical Journal, and serving on the Chandra TAC.

Michael Skrutskie

Vice Chair

Dr. Michael Skrutskie is a professor of Astronomy at the University of Virginia where he directs a laboratory for the design and fabrication of ground-based astronomical cameras and spectrographs operating in the infrared. His primary scientific expertise lies in the areas star formation and brown dwarfs. He is a strong advocate of building suites of instruments for small telescopes with student-designed state-of-the-art instruments both as a means of training new instrumentalists as well as enabling unique science inaccessible to larger telescopes. Skrutskie was the Principal Investigator for the Two Micron All Sky Survey (2MASS) and currently serves on the science team of the Wide-Field Infrared Survey Explorer (WISE) mission – the mid-infrared complement to 2MASS. He has been the recipient of the James Craig Watson Medal of the National Academy of Sciences and the Maria and Eric Muhlmann Award of the Astronomical Society of the Pacific. He has served as the Chair of the Spitzer Space Telescope Users Panel for the past five years and as a member of the Hubble Space Telescope Institute Council.

Charles Bailyn

Member

Charles Bailyn is the Thomas E. Donnelley Professor of Astronomy and Physics at Yale University, where he served as department chair from 1999-2005. He is an observational astronomer with particular expertise in multi-wavelength observations of high-energy sources. Dr. Bailyn has been awarded the Robert Trumpler prize from the Astronomical Society of the Pacific for his PhD thesis work (1990), and the Bruno Rossi prize from the American Astronomical Society for contributions to high energy astrophysics (2009), as well as several teaching prizes from Yale University. He has considerable experience in the management of ground-based telescopes, as the founder and Principal Scientist of the Small and Moderate Aperture Research Telescope System (SMARTS) which operates four 1m class telescopes at Cerro Tololo in Chile, and as the current President of the Board of WIYN Corp., which operates a 3.5m and an 0.9m telescope at Kitt Peak in Arizona. He has served on the Users Committee and Observatory Council for the National Optical Astronomy Observatory, on the NSF ReSTAR committee to study telescopes with apertures 6m during the upcoming decade, and on the Board of Visitors for the NSF Astronomy division.

Betsy Barton

Member

Betsy Barton is an Assistant Professor at the University of California, Irvine, where she is a member of the Executive Board of the Center for Cosmology. She is an observer with expertise in galaxy evolution from the local universe to redshifts up to $z \sim 8$. Her current research involves studies of the effects of the galactic environment on the properties of galaxies, new techniques for using cosmological numerical simulations to interpret data, and a search for star formation at epochs before the reionization of the universe was complete. A former Hubble Fellow, Dr. Barton brings a broad perspective to the science case for the next generation of optical and infrared facilities and instrumentation. Before moving to the University of California, she worked informally on the Canadian Very Large Telescope project, the Giant Magellan Telescope science case, and science studies for instrumentation on 8-10-meter-class telescopes. She has been a member of AURA's Science Working Group for the Giant Segmented Mirror Telescope since 2002. Currently, she is a member of the Science Advisory Committee for the Thirty Meter Telescope Project and is Project Scientist for the IRIS (InfraRed Imaging Spectrograph) instrument being designed for TMT. Dr. Barton serves on the American Astronomical Society's Committee on Employment and is a member of the Program Review Panel for the National Optical Astronomy Observatory.

Todd A. Boroson

Member

Todd Boroson is an astronomer on the staff of the National Optical Astronomy Observatory. He has published numerous scientific papers on extragalactic astronomy, concentrating mostly on stellar populations and quasars, but also including instrumentation and data management for astronomy. Most of his 20 years at NOAO has been spent in positions with significant administrative responsibility. He was the first U.S. Project Scientist for Gemini, NOAO Deputy Director, and, most recently, Interim Director of NOAO for almost two years, during which time he formulated NOAO's response to the NSF Division of Astronomical Sciences Senior Review. Dr. Boroson was a member of the Council of the American Astronomical Society, the NRC Committee on Astronomy and Astrophysics (CAA) and of the previous (McKee/Taylor) Astronomy and Astrophysics Survey committee, including the role of vice-chair of the panel on Optical and IR Astronomy from the ground. Following the recommendations from that survey, he led the design and implementation of a number of programs aimed at developing a community-wide perspective of ground-based O/IR facilities as a system, including the Telescope System Instrumentation Program (TSIP), Renewing Small Telescopes for Astronomical Research (ReSTAR), and Access to Large Telescopes for Astronomical Instruction and Research (ALTAIR).

Daniel Eisenstein

Member

Daniel Eisenstein is a Professor of Astronomy at the University of Arizona. He works on cosmology and galaxy evolution using both theoretical and observational tools. His primary focus has been on the use of large-scale structure to determine the composition and history of the universe. He is an expert in the study of the baryon acoustic oscillations, a phenomenon by which sound waves that propagate in the first million years after the Big Bang leave a distinctive imprint in the large-scale clustering of galaxies today that one can use to measure the expansion history of the Universe and therefore probe the properties of dark energy. Dr. Eisenstein is the Director of the Sloan Digital Sky Survey III, which features four major spectroscopic surveys to study the large-scale structure of the Universe, the formation of the Milky Way, and the demographics of extrasolar planets. He is also heavily involved in the Joint Dark Energy Mission (JDEM) and the Gemini/Subaru Wide-field Multi-Object Spectrograph. He is a co-PI of two recent redshift surveys: the AGN and Galaxy Evolution Survey and the PRISM MULTI-object Survey. He is a member of the James Webb Space Telescope Near-infrared Camera team. Dr. Eisenstein is chair of the Theoretical Astrophysics Program at the University of Arizona and is a leader in the theoretical modeling of the baryon acoustic oscillation method and high-precision large-scale structure. He is a member of the NOAO ALTAIR committee and was on the LSST Science Working Group and the JDEM Science Definition Team, Figure of Merit Science Working Group, and Science Coordination Group.

Andrea M. Ghez

Member

Andrea Ghez is a Distinguished Professor of Physics and Astronomy at the University of California Los Angeles (UCLA). She is an observational astrophysicist with expertise in infrared astronomy, high resolution imaging techniques, and large ground-based telescopes. Her research has led to several ground-breaking results, which include the discovery of a supermassive black hole at the center of our Galaxy and the discovery that most, if not all, stars shortly after birth have companions stars. Dr. Ghez is a member of the National Academy of Sciences and the American Academy of Arts & Sciences. She is also a recipient of several awards, including a MacArthur Fellowship, the AAS Pierce Prize, the APS Maria Goeppert-Mayer Award, University of Arizona's Aaronson Award, and University of Tel Aviv's Sackler Prize. She currently serves as a member of the Thirty Meter Telescope (TMT) Science Advisory Committee and NRC's Board on Physics and Astronomy (BPA, for her second term). Her service to other NRC committee's include memberships on the Committee on Astronomy and Astrophysics (CAA, two terms), the McKee-Taylor Astronomy Decadal OIR Panel, and the search committee for the chair of the Astronomy Decadal review that is currently underway (ASTRO2010).

J. T. Hoeksema

Member

J. Todd Hoeksema is a Senior Research Scientist in the W.W. Hansen Experimental Physics Laboratory at Stanford University. His primary scientific interests include the physics of the Sun and the interplanetary medium, solar-terrestrial relations, the large-scale solar and coronal magnetic fields, solar velocity fields and rotation, helioseismology, and education and public outreach. His professional experience includes research administration, system and scientific programming, and the design, construction, and operation of instruments to measure solar magnetic and velocity fields from both ground and space. He is co-investigator and magnetic team lead for the Helioseismic and Magnetic Imager, scheduled for launch in 2009 on NASA's Solar Dynamics Observatory, and the instrument scientist for the Michelson Doppler Imager instrument on the Solar and Heliospheric Observatory that was launched in 1995 by NASA and the European Space Agency. He has been associated with the Wilcox Solar Observatory at Stanford for three sunspot cycles. In 2006 NASA awarded him the Distinguished Public Service Medal. Dr. Hoeksema currently chairs the Solar Physics Division of the American Astronomical Society, serves on the Solar Observatory Council of the Association of Universities for Research in Astronomy, and is completing a term on the Heliophysics Subcommittee of the NASA Advisory Council Science Committee. He is a member of the American Geophysical Union, International Astronomical Union, American Scientific Affiliation, and American Association for the Advancement of Science and was for several years vice-chair of Commission E.2 of the Committee on Space Research. Dr. Hoeksema recently chaired the 2005 Roadmap Team that developed the community's current 25-year strategy for the Heliophysics Division of the NASA Science Mission Directorate. During an earlier 4-year stint at NASA Headquarters as Solar and Heliospheric Discipline Scientist and Solar-Terrestrial Probes Program Scientist, he was the agency's Heliophysics Division liaison for the 2002 Sun-Earth Connection Roadmap.

Robert P. Kirshner

Member

Dr. Robert Kirshner is a professor at the Harvard-Smithsonian Center for Astrophysics. He received his Ph.D. in Astronomy from Caltech in 1975. He is a world leader in the study of supernovae and their application to astronomy and cosmology. His work on Supernova 1972E, explorations of large-scale structure, studies of Supernova 1987A in the Large Magellanic Cloud, and new methods for measuring extragalactic distances have all been fundamental contributions to astrophysics. He is an observational astronomer who uses supernova explosions to measure the size and motion of the Universe. He has also been engaged in efforts to measure the distribution of galaxies in three dimensions through large redshift surveys. Dr. Kirshner has served as chair of the American Astronomical Society, and as a member of the U.S. National Committee for the International Astronomical Union, the Proceedings of the National Academy of Sciences Editorial Board, the Expert Content Group for the Exhibition on Wonders of Science—Subcommittee of the Marian E. Koshland Science Museum Advisory Committee, the Communications Advisory Committee, the Panel on Cooperation with the USSR in High Energy Astrophysics, the Organizing Committee for the First Annual Symposium of Frontiers of Science, the Committee on Space Astronomy and Astrophysics, and the Task Group on the Scope of the Space Telescope Science Institute.

Bruce Macintosh

Member

Bruce Macintosh is an astronomer at the Lawrence Livermore National Laboratory. He obtained his PhD in 1994 from UCLA, working on infrared instrumentation and brown dwarf studies, and he has worked primarily in the field of adaptive optics (AO) since then. He is a founding member of the NSF Center for Adaptive Optics and serves as its Associate Director for high-contrast and exoplanetary science. Dr. Macintosh is a leader in the field of advanced adaptive optics, particularly performance modeling and optimization and the design of coronagraphic AO systems for high-contrast imaging. His primary astronomical research areas include planetary science and the search for extrasolar planets, and he has extensive optical and IR observing experience with many major telescopes and AO systems. Dr. Macintosh co-led the team that discovered the HR8799 planetary system with the Gemini and Keck telescopes. He is the Principal Investigator for the Gemini Planet Imager project. He served on the Exoplanetary Task Force (ExoPTF) of the Astronomy and Astrophysics Advisory Council and led the ExoPTF's modeling and analysis effort, responsible for quantitative comparison of the scientific capabilities of different planet search methodologies. He also serves on the Keck Observatory Adaptive Optics Working Group and the Gemini Adaptive Optics Science Working Group and has served on grant review panels for NSF, NASA, and LLNL.

Piero Madau

Member

Piero Madau is currently a Professor in the Department of Astronomy and Astrophysics, University of California, Santa Cruz. He got his B.Sc. in Physics at the University of Florence (1983), and his Ph.D. in Astrophysics at the International School for Advanced Studies, Trieste (1987). He was a postdoctoral fellow at the California Institute of Technology (1987-1989), a Allan C. Davis Fellow at the The Johns Hopkins University (1989-1992), and an Astronomer at the Space Telescope Science Institute (1992-1999). From 1999 to 2000 he was Assistant Director of Research at the Institute of Astronomy, Cambridge. He is a distinguished theorist with broad expertises in the formation and evolution of galaxies, the physics of the intergalactic medium, the astrophysics of massive black holes. He has served in many NASA, DOE, and foreign panel and committees. From 2003 to 2006 he was a member of the advisory board for the Kavli Institute for Theoretical Physics (KITP). He is currently a member of the Laser Interferometer Space Antenna International Science Team. In 2005 he was the recipient of the A. von Humboldt Senior Research Award.

Dr. John Monnier

Member

John Monnier is an Associate Professor of Astronomy at the University of Michigan. He received his PhD in Physics in 1999 from the University of California (Berkeley) and was a Harvard-Smithsonian Center for Astrophysics Fellow until 2002. Dr. Monnier has been a pioneer in developing instrumentation for high angular resolution astronomy. In the field of optical/infrared interferometry, he has played key roles in the ISI, IOTA, and CHARA Interferometers. Notably, the Michigan Infrared Combiner, built by Prof. Monnier's group, was used at the CHARA Interferometer to image for the first time the surface of a main sequence star other the Sun. Currently, he is applying these techniques to the study of a range of stars and interacting binaries, preplanetary disks, and exoplanet detection. Dr. Monnier has served as Program Chairman for the biennial SPIE conference on Advances in Interferometry and is a founding Organizing Committee Member of the IAU Commission 54 on Optical and Infrared Interferometry. He has experience with space missions, having worked on the science team for planning the Fourier-Kelvin Space Interferometer mission and was a member of the Terrestrial Planet Finder Interferometer Science Working Group. Dr. Monnier was also a member of the Keck Interferometer Science Working Group and is now serving on the NOAO ALTAIR committee, which was formed to review the future of 8-m class telescopes in the US telescope system.

Iain N. Reid

Member

Neill Reid is Head of the Science Mission Office at Space Telescope Science Institute. He is an experienced observational astronomer, with extensive expertise at ultraviolet, optical, near-infrared and mid-infrared wavelengths using both ground- and space-based telescopes. He has particular experience in large scale survey programs, having been Project Scientist for the Second Palomar Sky Survey (1987-1999) and a key member of the 2MASS Rare Objects Survey team (1998-2002). His main areas of research are Galactic structure, low-mass stars, brown dwarfs, exoplanets and astrobiology. He also has extensive knowledge of science policy issues through his participation in and then leadership of the Science Policies Division at STScI, including organizing HST time allocation processes. He is a Fellow of the Royal Astronomical Society and a member of the AAS, and has served on NASA and NSF panels, including the SIM Science Working Group, the WISE delta-review and NSF galactic Astronomy and Fellowship panels.

Charles E. Woodward

Member

Charles (Chick) Woodward is a professor of astronomy at the University of Minnesota. He is an infrared astronomer who conducts studies on astronomical dust particles produced in the atmosphere of evolved stars and cometary dust in the solar system. He is chair of the International Gemini board, an elected councilor of the American Astronomical Society, and has chaired the American Astronomical Society Committee on the Status of Minorities in Astronomy. Dr. Woodward served as a presidential faculty fellow at the University of Wyoming where he was a professor and a National Science Foundation fellow. His published research has covered infrared spectroscopy, star formation, evolved stellar populations, novae, and comets. In 1997, he co-authored an article on the baffling halo emission from Galaxy NGC5907 for Nature. Dr. Woodward served on the NRC Committee on Astronomy and Astrophysics, the Committee on Review of Progress in Astronomy and Astrophysics toward the Decadal Vision, and the Committee on NASA Astrophysics Performance Assessment. Currently Dr. Woodward is a member of the space studies board.