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Astronomical Society of the Pacific Announces 2025 Awards for Astronomy Research and Education

San Francisco, California – September 10, 2025 - The Astronomical Society of the Pacific (ASP), one of the oldest, innovative, and respected organizations in the U.S. dedicated to increasing the understanding and teaching of astronomy, is honored to announce the recipients of its 2025 awards for excellence in astronomy research and education.

Join us in celebration of these prestigious awards at the in-person ASP Awards Gala on Saturday, November 8, 2025 at the Hilton San Francisco Airport Bayfront, Burlingame, CA.

Catherine Wolf Bruce Gold Medal

The recipient of the **2025 Catherine Wolfe Bruce Gold Medal** is **Dr. Gary J. Ferland**, Professor of Physics and Astronomy at the University of Kentucky in Lexington. Ferland is a leader in the field of quantitative spectroscopy who created the groundbreaking ionization and thermal synthesis code, *Cloudy*, which has been instrumental in accurately predicting the chemical, physical, and radiative conditions in a wide range of gaseous nebulae, including nova remnants, supernova ejecta, planetary nebulae, molecular clouds, galactic HII regions, and the central regions of active galactic nuclei. Although the initial work on *Cloudy* began 40 years ago, it continues to be updated and remains a powerful tool in the spectral analysis of gases and plasmas.

Ferland earned his PhD in astronomy from the University of Texas in Austin in 1973 with a doctoral thesis focused on the use of high-resolution spectroscopy to describe the composition, evolving radiation field, and complex motions of its ejecta. As one nominator remarked, Ferland's thesis was "the most detailed study of a nova up to that time." From 1978 to 1980, Ferland worked with Bruce Medalists Martin Rees and Andy Fabian at the Institute of Astronomy at Cambridge University, investigating the ultraviolet emissions of radio galaxies revealed by the International Ultraviolet Explorer. It was when Ferland's work focused on understanding the processes leading to the physical conditions of nebulae and active galaxies that he began creating the simulation codes that eventually lead to *Cloudy*.

Among his many accomplishments, Ferland's analysis of the spectroscopic data from UV, visible, and infrared wavelengths collected both on the ground and in space has led to a deep understanding of active galactic nuclei and the gases that surround their central black holes. By successfully modeling the underlying atomic and molecular physics, Ferland has been able to describe the radiation fields, density distribution, abundances, and kinematics of the emitted gases. As one of his nominators pointed out, "These models constitute among the best theoretical specifications of the toroidal geometry of gas being accreted by a central black hole."

Dr. Ferland has authored 713 refereed publications which have over 40,000 citations. A recent analysis of citations over a twenty-year interval found Ferland received more acknowledgments for contributing to astronomy research than any other scientist. He has received several awards and honors, including the 2016 Albert D. and Elizabeth H. Kirwan Memorial Prize for research from the University of Kentucky. He was elected a Fellow of the American Association for the Advancement of Science and named a Fellow of the American Astronomical Society. In addition, in 2023, *Nature Astronomy* named *Cloudy* its first "Code of Honor" in its inaugural Access Code column focused on computer codes widely used in astrophysics.

To ensure that *Cloudy* remains a relevant tool for research, Dr. Ferland has personally trained and supported the worldwide astronomical community in the use of *Cloudy*. His *Cloudy,* Summer and Winter Schools provides training specifically aimed at postgraduate research students and postdocs – providing the next generation of astrophysicists with his mentorship, advice, and support.

The Astronomical Society of the Pacific's **Catherine Wolfe Bruce Gold Medal** was established by Catherine Wolfe Bruce, an American philanthropist and patroness of astronomy. The ASP presents the medal annually to a professional astronomer in recognition of a lifetime of outstanding achievement and contributions to astrophysics research. It was first awarded in 1898 to Simon Newcomb. Previous recipients of the Bruce Medal include Giovanni V. Schiaparelli (1902), Edwin Hubble (1938), Fred Hoyle (1970), Vera Rubin (2003), and more recently for her contributions to the James Webb Space Telescope, Marcia Rieke (2023).

Klumpke-Roberts Award

Awarded to an individual or individuals who have made outstanding contributions to the public understanding and appreciation of astronomy, the **Klumpke-Roberts Award for 2025** goes to **Dr. Kimberly Arcand**, for over 26 years of bringing astrophysics discoveries to broad and diverse audiences through innovative astronomy communication methodologies.

Arcand's extraordinary contribution as the visualization scientist and emerging technology lead for the Chandra X-ray Center has, as one nominator professed, "played an essential role in bringing discoveries like Chandra's to the world in a way that is both accessible and inspiring."

Arcand began her career in molecular biology and public health before she moved into the Smithsonian Astrophysical Observatory to work for NASA's Chandra X-ray Observatory in 1998. She currently serves as the communications and public engagement lead for the Chandra X-ray Center which is located at the Smithsonian Astrophysical Observatory in Cambridge, Massachusetts, and as co-investigator for NASA's Universe of Learning. The cutting-edge contributions took Arcand into a world where she created a new approach to science communication. Her method of storytelling included a series that integrated traditional, high-end, science-driven technology products with accessible, hands-on, low-tech versions of key activities she and her team developed.

During her groundbreaking work Arcand has collaborated with organizations of all types both domestically and internationally including NASA, the Smithsonian Institution, the International Astronomy Union, UNOOSA, UNESCO, the U.S. Department of State, the U.S. Library of Congress, the National Park Service, Girls Who Code, Black Girls Code, and the National Federation of the Blind, to name only a few.

Accessibility has been one of the tenets of Arcand's career. This is reflected in her research which led her to projects that conveyed the dimensional nature of objects in space using low-tech skills such as Legos, origami and paper circuits as well as emerging technology such as 3D printing, VR experiences, and sonifications. Her collaboration with Brown University included mentoring student interns to develop code for immersive experiences with such cosmic sources as supernovas and the Galactic Center. Her curated sets of 3D models were used by blind and low-vision (BLV) audiences and her viral program of sonifications opened a new genre of public interaction for both the sighted and BLV audiences.

Arcand has also developed innovative "public science" projects that placed scientific content in free public spaces such as parks, metro stations, town squares and more. These projects include the award-winning exhibit "From Earth to the Universe" giving open access to astronomy images and captions (and translations) shared in hundreds of communities around the world as well as "Light Beyond the Bulb" reaching 35 countries, over a dozen language translations, and providing Braille/tactile options.

Arcand, throughout her career, has mentored dozens of high school, undergraduate and graduate students, and early-career researchers, setting them on the path to become science communicators by involving them in communications strategies, data visualization projects, and public engagement initiatives.

Capping off her incredible accomplishments, was the impact she made with a massive public engagement and communications campaign celebrating Chandra's 25th anniversary in 2024, reaching millions of people from Washington D.C. to Las Vegas. A documentary, "Listen to the Universe" and a Chandra sonification project, "Where Parallel Lines Converge" earned prestigious accolades. Arcand is also an author of popular science books with a ninth book coming out in February, 2026. One nominator simply said, "She exemplifies the very best of what it means to be a science communicator in the 21st century, harnessing cutting-edge technology and creative storytelling to make the universe accessible to all."

Robert J. Trumpler Award

The **Robert J. Trumpler Award** is presented to a recent recipient of a PhD degree whose research is considered unusually important to astronomy. The recipient of the **2025 Robert J. Trumpler Award** is **Dr. Justin Myles**, who received his doctorate in physics from Stanford University and is currently a Brinson Fellow at Princeton University. Myles' landmark contributions to observational cosmology were summarized by one of his nominators, who wrote, "his research record and profile are at the core of what we need in order to make the upcoming generation of cosmological galaxy surveys a success."

Dr. Myles' groundbreaking doctoral research focused on his development of a new technique for calibrating the distances to galaxies measured through optical surveys using a fraction of the spectroscopic data required by other methods. These are galaxies exhibiting exceedingly small shape distortions due to their weak lensing effects, and the enormous and urgent challenge faced by large-scale surveys of galaxies was the prohibitive cost required to calibrate distances through the available methods of spectral analyses. Myles' method proved efficient and highly successful when applied to the Dark Energy Survey (DES) of 300 million galaxies conducted in Chile. The DES was the largest optical survey performed at the time and a precursor to the transformative work to be undertaken by the Vera C. Rubin Observatory and its large-scale survey of tens of billions of galaxies visible from the Southern Hemisphere. Myles' methodology is being adopted for the Vera C. Rubin survey – the Legacy Survey of Space and Time (LSST) – which will help reveal the nature of dark matter and dark energy. As one of his nominators for the 2025 Trumpler Award stated, "he is uniquely positioned to make significant contributions to lensing redshift calibration with LSST data."

A second focus of Myles' dissertation was the development of methods for determining the number of galaxies within a cluster. For optical surveys, like DES and LSST, the challenge is that galaxies are often viewed in projection along the line of sight which produces overestimates in their numbers. To get precise counts, projection effects must be precisely quantified which is beyond current capabilities, representing a tremendous problem for cosmologists. Myles solved the problem by examining existing data on galaxy clusters derived from optical catalogs and the corresponding results from spectroscopy made by the Sloan Digital Sky Survey. His insightful empirical analysis of the data has led him to develop numerical methods for modeling galaxy counts in clusters more accurately.

Justin Myles is the co-author of publications with a total of 4,784 citations. As a testament to the importance of his work, Dr. Myles was a finalist for the American Physical Society's Cecilia Payne-Gaposchkin Award for outstanding astrophysics thesis. He has also recently received Princeton University's prestigious Henry Norris Russell Fellowship and Future Faculty Fellowship where he is currently a postdoctoral researcher.

Nancy Grace Roman Award

Named for an icon in the history of astronomy research and space exploration, ASP's Nancy Grace Roman Award was introduced in 2023 to recognize an individual or group for significant contributions to promoting gender equity and inclusion in astronomy and related fields. The **2025 Nancy Grace Roman Award** goes to **Dr. Laura Lopez** not just for her undeniable dedication as a leader in the study of supernova remnants and massive star feedback processes in galaxies, but also her dedication to promoting gender equity and inclusion in astronomy and her vigorous support to students from historically marginalized groups.

Prof. Lopez membership and as current co-Chair of the Committee on the Status of Minorities in Astronomy (CSMA) and her 10 years as an active member of the American Astronomical Society (AAS) has led to her significant role in introducing initiatives to increase gender and minority representation and retention in all levels of astronomy. Her work at OSU includes being a faculty sponsor of *BlackinAstro*, a national initiative to amplify the experiences and accomplishments of Black students and researchers in space-related fields. She also supports OSU's Polaris mentorship program and as one nominator professes, "by launching new leaders into our community and by stewarding these programs, Prof. Lopez multiplicatively increases her already very large impact."

Prof. Lopez is also a researcher focusing on the complex web of interactions between star formation in galaxies, the massive stars this process produces, and the feedback of massive stars on the star formation process. While many astronomers spend their careers studying one of the ultraviolet, optical, infrared, radio, gamma-ray, or X-ray bands, Lopez employs them all using them to provide physical constraints on the systems she investigates. She is also a highly decorated teacher, lecturing, broadcasting, and writing widely and explaining complex concepts with clarity.

Directly advising and mentoring to support students from historically marginalized groups in STEM, Prof. Lopez has trained graduate and undergraduate postdocs, many who have been awarded prestigious postdoctoral and faculty positions at many highly regarded programs in the world. Her research, scientific leadership, and contributions to inclusion and equity have been recognized with many prestigious awards, most notably being named a Fellow of the American Astronomical Society for extensive contributions to advancing equity and inclusion in astronomy and physics through transformative mentorship programs and for nearly 20 years of national leadership in the AAS. Summarized by one nominee, Lopez "is an exceptional scientist, a celebrated and transformative mentor to students and postdocs, and a trailblazing leader for women and historically marginalized groups in astrophysics."

Thomas J. Brennan

The Astronomical Society of the Pacific's (ASP) **Thomas J. Brennan Award** is given to an individual demonstrating excellence in the teaching of astronomy at the high school level in North America. **William Keith Turner**, teacher and Planetarium Director at Carmel High School in Carmel, Indiana, receives the **Thomas J. Brennan Award** for excellence in the teaching of astronomy, commitment to classroom or planetarium education, and training of teachers.

Turner's exceptional and ongoing commitment to sharing his knowledge of the Universe has reached thousands of students whether directly through his classroom, via a planetarium, or through the training of other teachers. As a High School teacher alone, Turner has given his students the experiences of a lifetime using his passion for hands-on learning and giving his students the opportunity to use professional equipment and even space probes. His students were involved with the 3.5-meter WYIN telescope at Kitt Peak National Observatory collecting star-field images and watching professional astronomers at work with the telescope. His students even received recognition such as the national NASA competition to study Mars using the *Mars Odyssey* spacecraft orbiting the planet. These opportunities and enrichment gave me "the hands-on skills in practicing presentations, public speaking, and learning how to help manage projects and time," recalls a former student. He further praises that "working with Keith at the planetarium [helped me] develop skills I use every day as an engineer at Google and led to a lifelong love of astronomy that I am now passing on to my children."

As planetarium director, Turner did not just create programs, but updated facility technology, such as the automation of video effects and star projectors, to encourage and promote more student interest in astronomy. His mentoring led to students building skills such as providing proof of learning through explanation, calculations, and questioning. He also adjusted night sky presentations and to include sign language into the darkness of planetarium shows so that the deaf community could take his astronomy classes. His 10 years as a summer instructor at Ball State University offered summer workshops for planetarium staff nationwide and involved training in program design and visual creation techniques. Turner's outreach events included the celebration of the April 8, 2024 Total Solar Eclipse, or the Transit of Venus in 2004, bringing the wonders of the universe to the public, not just students and educators.

Turner's leadership in his school and within his profession merited the multiple awards thanking him for his commitment such as NASA's 2010 Gold and Top Star Award for his "Adopt a Constellation" project, or the two Lilly Endowment Teacher Creative Fellowship Awards. "Keith is an excellent role model for staff and students and was selected in 2023 as one of Carmel High School's Most Influential Teachers," praises his nominator.

About the ASP

The Astronomical Society of the Pacific (ASP), established in 1889, is a 501c3 nonprofit organization whose mission is to use astronomy to increase the understanding and appreciation of science and to advance science and science literacy. The ASP connects scientists, educators, amateur astronomers and the public together to learn about astronomical research, improve astronomy education, and share resources that engage learners of all kinds in the excitement and adventure of scientific discovery. Current ASP programs and initiatives support college faculty, K-12 science teachers, amateur astronomy clubs, science museums, libraries, park rangers, and Girl Scouts to name a few.

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