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Astronomical Society of the Pacific Announces 2024 Awards for Astronomy Research and Education

San Francisco, California – September 16, 2024 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 2024 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 9, 2024 at the Hilton San Francisco Airport Bayfront, Burlingame, California.



Catherine Wolfe Bruce Gold Medal

The Astronomical Society of the Pacific (ASP) is proud to announce the 2024 recipient of its most prestigious award, the **Catherine Wolfe Bruce Gold Medal** honoring **Dr. Chryssa Kouveliotou**, a recognized leader in the field of high-energy astrophysics, having made groundbreaking discoveries and landmark contributions to the nature and origins of gamma ray sources, in particular magnetars and gamma-ray bursts.

Prof. Kouveliotou has been at the forefront of research in the study of gamma ray sources starting with her PhD thesis in 1981. She ultimately received global recognition for her study of gamma-ray bursts, and the landmark discovery that there are two distinct populations of these events, based on their duration and their photon energy. She also played a critical role in the international collaboration that found the first multiwavelength “afterglows” of gamma-ray bursts coming from cosmic explosions - a discovery that revolutionized the field. In the early 1990s, Prof. Kouveliotou discovered that short, but exceptionally bright, bursts of gamma rays were coming from neutron stars with especially strong magnetic fields. Dubbed “magnetars,” this class of neutron star was theoretically predicted by astrophysicists around the same time, opening a whole new field of study in which Prof. Kouveliotou has led for three decades.

Dr. Kouveliotou received her PhD from the Technical University of Munich in 1982, joining the Section of Astrophysics and Astronomy Mechanics in the Physics Department at the University of Athens, Greece. Originally a contractor with NASA she began her career in 1994 with NASA’s Marshall Space Flight Center in Huntsville, Alabama. She became a US citizen in 2002 and then was hired by NASA as a civil servant at the highest Government grade. In 2013 she was promoted to a Senior Technologist of High-Energy Astrophysics until she joined The George Washington University faculty as a Full Professor in Astrophysics. In 2015 she founded the *George Washington Astronomy, Physics, and Statistics Institute of Sciences*, a multidisciplinary Institute focused on multiwavelength observations, statistical inference, modeling, and simulations of high- energy phenomena in the universe.

Under her leadership at The George Washington University, a vibrant research group evolved into a hub for research in high-energy astrophysics. A nominator and colleague effusively expressed “she has not only continued her leadership in her research through high-profile publications, but she has also provided springboards for early-career scientists like me to grow and become leaders in their respective research fields.”

While at NASA, she was charged by the Astrophysics Subcommittee of the Science Committee of NASA’s Advisory Council to chair a task force on the strategic planning and roadmap of NASA’s Science Mission Directorate/Astrophysics Division. Their report, *Enduring Quests - Daring Visions: NASA Astrophysics in the Next Three Decades*, preceded and set the stage for the *2020 Decadal Survey for Astrophysics*. Dr. Kouveliotou has been the principal investigator of numerous research projects in the United States and Europe and a founding member of multiple scientific collaborations worldwide. She is an affiliate scientist of the NASA Swift and of the Fermi GBM missions, and the Science co-chair of XTRA, a mission to be proposed for the next NASA Medium Explorer program.



Dr. Kouveliotou currently has 495 refereed publications, of which 49 are in the prestigious journals, *Nature* and *Science*. She is one of the 249 most-cited space science researchers worldwide with a current total of 50,083 citations and 427,258 reads. For her numerous landmark achievements and contributions to our understanding of the cosmos, she has received a number of prestigious awards and honors, including membership in the National Academy of Sciences in the United States, the American Academy of Arts and Sciences, foreign membership in the Royal Dutch Academy of Sciences, a corresponding member in the Athens Academy, Greece, two honorary PhD's (University of Sussex, United Kingdom and University of Amsterdam, The Netherlands), NASA's Exceptional Service Medal, the *Bruno Rossi Prize* from the High Energy Astrophysics of the American Astronomical Society, the European Union's *Descartes Prize*, the *Dannie Heineman Prize* awarded jointly by the American Astronomical Society and American Institute of Physics, and the *Shaw Prize* for Astronomy.

About the Medal

The Catherine Wolfe Bruce Medal was established by an American philanthropist and patroness of astronomy Catherine Wolfe Bruce. 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), Bart Bok (1970), Vera Rubin (2003) and Marcia Rieke (2023).



Arthur B.C. Walker II Award

The Arthur B.C. Walker Award honors an African-American scientist whose research has substantially contributed to astronomy or related fields, and who has demonstrated a substantial commitment to promoting diversity and inclusion in STEM. **The 2024 recipient of the Arthur B.C. Walker II Award is Dr. Gibor Basri**, Professor Emeritus of Astronomy and former Vice Chancellor for Equity and Inclusion at the University of California, Berkeley for his contributions to our understanding of the nature and origins of low-mass stars and substellar objects as well as his lifelong commitment to promoting diversity in astronomy.

Basri's early research focused on star formation, discovering evidence for the magnetic activity of very young stars and describing the role the star's magnetism plays in gas accretion and the formation of the stellar disk. A decade later, Basri turned his attention to very low mass stars and began the search for proof of the existence of theoretically predicted substellar objects, named "brown dwarfs." Using the sensitivity of the 10-meter Keck Telescope to perform high-resolution spectroscopy on these objects, Basri demonstrated that some of the faint red objects in the Pleiades star cluster are young brown dwarfs. His work also revealed that these objects - which lack the mass to ignite as stars - are rapidly rotating gas giants similar in many ways to the planet Jupiter. Basri next turned his attention to the search for exoplanets, becoming a Co-Investigator for the Kepler Space Telescope mission, which has discovered thousands of extrasolar planets, including numerous Earth-sized worlds in orbit around low mass stars.

Over his long career, Professor Basri has made important contributions to equity, diversity, and inclusion in astronomy and beyond. At the national level, he has served on several influential committees, including being the founder and Chair for the American Astronomical Society's (AAS) Committee on the Status of Minorities in Astronomy and Co-Chair of the AAS Task Force on Diversity in Graduate Education. But it was during his long tenure at the University of California, Berkeley where he made especially significant and lasting contributions to supporting students and faculty from traditionally underrepresented groups both within the field of astronomy and beyond.

Basri's impressive service includes membership in the Academic Senate Committee for the Status of Women and Ethnic Minorities, Co-Chair of the Diversity Project Coordinating Committee, and member of the committee to launch the Berkeley Diversity Research Initiative. From 2007 to 2015, Basri was inaugural Vice Chancellor for Equity and Inclusion for the University of California - a systemwide cabinet position responsible for developing a strategic plan, working with the Provost on equitable and diverse faculty hiring and promotion, overseeing initiatives to promote and support programs focused on diversity, and spearheading outreach programs to K-12 schools.

Basri has also made significant contributions to diversity outside of university academics, including participating in a variety of publications and media productions showcasing his own career as an African-American scientist. He has also participated in numerous local and community efforts to support and mentor minority school children and served on the Board of Directors of a variety of science education nonprofits supporting their efforts to promote diversity. In fact, while serving on the Board of the Astronomical Society of the Pacific, Basri led efforts to establish the Arthur B.C. Walker II Award which he now receives.



Maria and Eric Muhlmann Award

The Maria and Eric Muhlmann Award is given for recent significant observational results made possible by innovative advances in astronomical instrumentation, software, or observational infrastructure. The **2024 recipient of the Muhlmann Award is Dr. Robert Simcoe** for his leadership in building Folded-port InfraRed Echellette (FIRE) that has contributed to transformational discoveries in multiple subdisciplines.

Simcoe is the Francis L. Friedman Professor of Physics at MIT, where he leads the Astronomical Instrumentation Team, and is currently the Director of the MIT Kavli Institute for Astrophysics and Space Research. As a researcher, Simcoe has a portfolio of results on the evolution of the early Universe, but the Muhlmann recognition is for the design, construction, and operations of the Folded-port InfraRed Echellette (FIRE) installed on the 6.5-meter Magellan-Baade Telescope at Las Campanas Observatory, located in Chile's Atacama Desert. FIRE is a unique instrument optimized for infrared spectroscopy of faint targets that include the very high redshift universe, low mass stars, and solar system objects, among others. FIRE's technical design – in particular its compact and efficient optical package that permits it to be “always available” on the telescope – has enabled discoveries in several high-interest fields in astrophysics.

Unique amongst instruments in its class, FIRE allows observations in two key modes: one at spectral resolution allowing quick and effective classification of faint candidate objects of interest and another at high spectral resolution, allowing detailed follow-up and characterization of rare, diamond-in-the-rough targets. FIRE has been used to classify candidates for room-temperatures stars. Known as Y-class brown dwarfs, these ultra-low mass stars provide insight into the physics that separate the smallest and coolest stars from the largest planets. FIRE has also been used to identify the most distant known supermassive black holes analogous to black holes identified UV and optical wavelengths in the nearby universe, but whose signatures are shifted by cosmic expansion into the infrared. At early times in the Universe, these black holes are thought to be critical components of the formation and evolution of early galaxies.

Simcoe's leadership on FIRE led to its development, construction, and commissioning in under three years. It was funded through one of the largest astrophysics' instrumentation awards in its program class from the National Science Foundation at the time. Simcoe's leadership continued through active and engaged participation in the research of his user community, with his collaborators commenting on the importance of his insights in their ground-breaking work. Simcoe has also mentored numerous early career researchers who have been honored with the most competitive research fellowships and are now recognized leaders in their respective sub-disciplines.

Simcoe's collective instrumentation development programs have received over \$10 million in funding from the National Science Foundation, including his current project, the Large Lenslet Array Magellan Spectrograph (LLAMAS). Lastly, Simcoe has served on numerous observatory science advisory committees and is active in reviewing and advising other major instrumentation projects at Las Campanas Observatory, all of which pay forward to the next generation of instrumentalists and researchers.



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 **2024 Robert J. Trumpler Award is Dr. Maggie Thompson**, who completed her doctorate in astronomy from the University of California, Santa Cruz in 2023. One nominator declared that Thompson's dissertation work "will be seen as the start of something new in astrophysics."

Thompson's dissertation sat at the intersection of astrophysics, geochemistry, and meteorites to answer fundamental questions about the origins of rocky planet atmospheres, what compositions are feasible, and how to differentiate what gasses may be signs of life versus naturally forming. Thompson explored these questions through a range of scientific methodologies including developing novel laboratory experiments on meteorites and modeling expertise in planetary climate, photochemistry, and geochemical evolution. As facilities like the James Webb Space Telescope begin to probe the properties of rocky exoplanets directly, this compelling cross-disciplinary work is critical to interpret those observations. Thompson's meteorite experiments constrain how outgassing from rocky exoplanets produces molecules that set the stage for the development of an atmosphere. Thompson's modeling efforts demonstrated how methane, one of the few readily detectable biosignatures with current facilities, is produced in the absence of life. In her paper, published in *Proceedings of the National Academy of Science*, Thompson outlines a three-pronged recipe to determine if observations of abundant atmospheric methane could be a sign of life; with the James Webb Space Telescope actively detecting methane, Thompson's work is foundational to the search for extraterrestrial life.

Thompson's work has been published in prestigious journals and she has served as a research mentor to both more junior graduate and undergraduate students as well as serving as an organizer in the Bay Area, California for the Rising Stargirls Interactive Astronomy Workshops. Multiple nominators remarked on Thompson's engaging presence as a public speaker. Although early in her career, Thompson has taken on leadership roles as a member of the American Astronomical Society's Early Career Task Force and as a National Osterbrock Leadership Program Fellow.

Thompson is currently a NASA Hubble Fellowship Program Sagan Fellow at the Carnegie Institution for Science's Earth and Planets Laboratory, where her main research interest is to use experimental techniques to understand the link between atmospheres and the bulk composition of rocky exoplanets. As part of this work, she also collaborates with researchers at ETH Zürich in Switzerland.



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 2024** goes to **Richard Tresch Fienberg** for over 40 years as an advocate for astronomy sharing his passion and enthusiasm through his work and outreach, and for over a decade of dedication educating the public on all things solar eclipse.

Fienberg began his journey in 1968 to pursue a career that would involve something to do with space. He received a telescope on his 12th birthday and many events — including being riveted by *2001: A Space Odyssey* and visiting the set of the original *Star Trek* series — led him to an academic path in physics and astronomy. While in college he started working at the Jet Propulsion Lab, where he obtained his first taste of space science as an undergraduate intern with NASA's Viking mission to Mars, working on both the orbiter and lander teams. While working on his master's degree, he co-authored an article for *Sky & Telescope* magazine, and while pursuing his doctorate, he realized that he enjoyed teaching and writing about astronomy more than he liked doing research. After completing his PhD, Fienberg joined the staff of *Sky & Telescope* magazine; of the 22 years he worked there, he served for 8 as Editor in Chief and 9 as President of its parent company. Next came 1 year of teaching astronomy at a private high school followed by 12 years as Press Officer of the American Astronomical Society (AAS).

Fienberg is an elected Fellow of the American Association for the Advancement of Science; served as President of the International Astronomical Union's Commission C2, Communicating Astronomy with the Public; and has asteroid 9983 Rickfienberg named in his honor. He is also co-creator of the Galileoscope educational telescope kit designed for the 2009 International Year of Astronomy, co-wrote "Build a Sun Funnel" on how to make a solar-observing outreach aid, and co-authored the 5th edition of the book *Astronomy for Dummies* (Wiley, 2023).

Preparing for the North American solar eclipses of 2017, 2023, and 2024 gave Fienberg the opportunity to share his passion for astronomy with the largest audience ever. An eclipse chaser himself, he spent over a decade helping to lead the AAS Solar Eclipse Task Force to educate the public on how to safely and enjoyably view and understand these extraordinary events. Beginning in 2014, Fienberg and an interdisciplinary team of experts developed and disseminated clear and concise eye-safety information. To combat the proliferation of counterfeit and potentially dangerous "eclipse glasses," Fienberg single-handedly created and maintained an online list of reputable vendors that quickly became the leading reference for where to buy genuinely safe solar viewers. A professional colleague and nominator wrote "*He is one of those rare and exquisite humans who is fueled almost exclusively by his desire to make a difference within his area of expertise.*"

Fienberg received NASA's Exceptional Public Achievement Medal in 2018 for his work on solar eclipse safety, which the space agency credited with minimizing eye injuries during the 2017 eclipse across the United States. Even following his retirement in the fall of 2021, he volunteered full time to help prepare the public for the 2023 and 2024 solar eclipses. And again, his online list of sellers of safe solar viewers proved invaluable in limiting the number of eye injuries. Witnessing the direct impact of Fienberg's dedication, one nominator expressed how her daughter, a filmmaker, is now inspired to tell stories of science after having spent a significant amount of time documenting his work on the Solar Eclipse Task Force. "*His message is what you hope all educators convey: that knowledge and achievement are possible for humans, and that science can be not only advanced, but felt, and those feelings of awe can be the force to propel the next step.*"



Las Cumbres Award

Established by Wayne Rosing and Dorothy Largay, the **Las Cumbres Amateur Outreach Award** honors outstanding educational outreach by an amateur astronomer to K-12 children and the interested lay public. The **2024 award recipient is Elizabeth Leedham Bero**, retired educator and 34-year volunteer member of the Von Braun Astronomical Society (VBAS) in Huntsville, Alabama.

Elizabeth Bero's love of the stars led to a lifelong commitment of sharing this passion with others, as a science teacher and a volunteer. A long-time volunteer amateur astronomer with the Von Braun Astronomical Society (VBAS), Bero provides hour-long presentations for their Saturday night programs, as well as programs for schools, private parties, scout groups and others on request. She creates shows celebrating space and educating the public on many topics. Recent shows include *Space Junk*, *Edwin Hubble*, the *Hubble Space Telescope*, and the *Moon*. Bero presents to all ages, but has a special interest in the youngest visitors, delighting children with her annual *Spooky Skies* program in October and *Stars Fell on Alabama* each November. As the volunteer Educational Program Director of the Wernher von Braun Planetarium at VBAS from 1991 to 2003, she, along with the Planetarium Director, gained NASA funding to provide a website, presentations and materials regarding the Sun for fifteen middle schools in the Huntsville, Alabama area. To this day Bero continues to volunteer with VBAS and other statewide organizations to bring astronomy to the public. Bero presented to the Alabama Association for Gifted Children annual conference on *How to Hold a Star Party* (and how to borrow and use a portable planetarium.) For the Alabama Science Teachers' Association (ASTA) and the Environmental Educators' Association (EEAA) annual conferences, Bero recently presented her *Stars Fell on Alabama* program about meteorites and how to locate micrometeorites. She has taught multiple teacher workshops on how to use portable planetariums and present planetarium shows. Bero always emphasizes hands-on experiential learning.

As a middle school Earth Science and Astronomy educator, her early adventures included the 1986 Halley's Comet. Bero (then, Leedham) invited her students and their parents to meet her in a county park and view the comet at 2:30 a.m. Bero and her students always watched daytime shuttle launches from the front steps of her school in Tampa, Florida and so also saw the loss of the ill-fated Challenger Space Shuttle. Bero was then invited by the Museum of Science and Industry (MOSI) in Tampa to act as a volunteer writer of pre and post visit lesson plans for students attending the new Challenger Center installed there.

Bero's continued promotion of life-long learning has motivated students and the general public to discover astronomy and science. As a Girl Scout Leader from 2008 to 2016, she inspired scouts to earn space and astronomy badges with her VBAS planetarium shows. She helped her own scout troop to host and plan fun astronomy games and activities for younger scouts in an annual scout gathering at VBAS. She also volunteered for her son's Boy Scout troop as the Astronomy Badge counselor.

As an Education and Public Outreach contractor with NASA from 1992 to 2003, she worked to disseminate educator lesson plans through a new NASA website, planned daytime school shows and presented at a Southeastern Planetarium Association (SEPA) conference.



As a parent volunteer, and then a teacher volunteer, Bero planned and ran a Space Week for her neighborhood school, collecting materials, contacting guest speakers, and planning games and model rocket launches for a total of twenty-seven years. She even put together a “Virtual Space Week” during the pandemic in 2020.

Bero also advocates for dark skies. Through her advocacy, McDowell Environmental Center installed dark-sky friendly lighting on Bethany campus during construction. Bero is now planning a dark sky presentation for this coming spring at the next EEAA conference.

As a testament to Bero’s infectious passion, an educator colleague will never forget how Bero and she lay “in the middle of a road at Camp McDowell one dark night with a beautiful clear sky. She told me of the wondrous stories of the constellations, pointed out airplanes, and we actually saw the ISS go by. It is a memory that makes all of the difference when I look up at the skies at night.”



Richard H. Emmons Award

The Astronomical Society of the Pacific's **Richard H. Emmons Award** — established by Jeanne & Allan Bishop to honor Ms. Bishop's father, Richard Emmons, an astronomer with a lifelong dedication to astronomy education — is awarded annually to an individual demonstrating outstanding achievement in the teaching of college-level introductory astronomy for non-science majors. The **2024 recipient is Prof. Daniel Reichart, Department of Physics and Astronomy, University of North Carolina at Chapel Hill** for his innovative teaching methods, pioneering creation of educational programs and for committing to the introductory, non-science student and instructor communities.

Reichart's dedication to astronomy began twenty years ago with educational projects extending beyond the classroom. National funding for the Panchromatic Robotic Optical Monitoring and Polarimetry Telescopes (PROMPT) in 2004 which he still directs, led to his creation of the worldwide Skynet Robotic Telescope Network, promoting his vision for accessible, hands-on astronomical research. These programs, while creating global resources for astronomers monitoring gamma-ray bursts via an observational engine, have more importantly provided opportunities for student-initiated observation. Reichart's educational philosophy according to one colleague is the "ardent desire of empowerment to introductory astronomy students who are not planning to major in science." Giving them the same tools, ideas, and projects as professionals provides equitable opportunity and extends into his personally created YouTube channel (Skynet University) where he provides hours of tutorials to sharpen students' skills. One instructor sums up his impact on how "Dan treats undergraduate curriculum development with the same effort and seriousness as many large university astronomers treat their research."

Not only has Reichart been a Principal or Co-Principal Investigator on over 40 grants, but he has engaged over 14,000 students in his now over 20-year career as a Professor of Physics and Astronomy. Inspired by a trip to Green Bank Observatory as an undergraduate, he went on to create the annual Educational Research in Radio Astronomy (ERIRA) program. ERIRA is a yearly, week-long learning experience to inspire budding astronomers across North America with quality education resources that remove barriers, enabling novice learners to use optical and radio telescopes to align, stack, and create color images, or develop a set of analysis tools to make measurements and draw inferences. He has been dedicated to removing barriers and enabling students to participate in their own learning journeys working with real data, understanding their own work, and core topics in introductory astronomy. As one nominator expressed, "his innovative programs have left an indelible mark on the field and on the lives of countless students and educators."



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.

Through its annual awards, ASP recognizes achievement in research, technology, education, and public outreach. The awards include the ASP's highest honor, the Catherine Wolfe Bruce Gold Medal awarded since 1898 for a lifetime of outstanding research in astronomy. The Bruce Medal has gone to some of the greatest astronomers of the past and current century, including Bart Bok, Edwin P. Hubble, Subrahmanyan Chandrasekhar, Vera Rubin, and Marcia Rieke. The ASP also presents the Klumpke-Roberts Award for outstanding contributions to the public understanding and appreciation of astronomy. Awardees include Carl Sagan, Isaac Asimov, Dava Sobel, and the Hubble Heritage Project.

For more information, visit our website at astrosociety.org/awards

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