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Astronomical Society of the Pacific Announces 2019 Awards for Astronomy Research and Education

San Francisco, California – July 25, 2019 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 2019 awards for excellence in astronomy research and education.

Join us in celebration of these prestigious awards at the ASP Awards Gala (Ceremony and Banquet) on November 9, 2019, at the Doubletree by Hilton Hotel, Burlingame, CA.

Maria and Eric Muhlmann Award

The **Maria and Eric Muhlmann Award** recognizes significant observational results made possible by innovative advances in astronomical instrumentation, software, or observational infrastructure. The 2019 recipient of the Muhlmann Award is **Dr. Mark J. Reid**, Senior Radio Astronomer at the Smithsonian Astrophysical Observatory, a pioneer in the use of Very Long Baseline Interferometry (VLBI) and in the development of the Very Long Baseline Array (VLBA).

Among his numerous achievements in radio astronomy made over the course of his career, Dr. Reid is being recognized for his unique use of VLBI to study the intense radio emissions coming from excited molecules, also known as astrophysical masers, to make incredibly accurate distance measurements to both nearby and distant galaxies. Reid also used this technique to make detailed, 3-dimensional measurements of our own Milky Way Galaxy's and its elusive center, a feat earning him the deep respect of his peers. As a nominator pointed out, "VLBI is generally regarded as a 'black belt' technique requiring an extraordinarily high level of expertise to exploit the full power of the method; and spectral line VLBI 3-dimensional astrometry is by far the most complex and challenging application within VLBI."

Among Reid's other contributions to astronomy stemming from his innovative radio techniques has been the determination that the Milky Way Galaxy likely has four spiral arms rather than two and has a flat rotation curve similar to the Andromeda Nebula, implying that the dark matter haloes are similar. Reid also revised measurements of the galactic rotation velocities, leading to a much more accurate estimate of the Galaxy's mass. As one nominator stated, Reid's findings have *"redrawn the map of the Milky Way."*

Reid has received numerous awards and honors, including a Senior Award from the Alexander von Humboldt Society, the Beatrice Tinsley Prize for outstanding career contributions from the American Astronomical Society, and election to the National Academy of Sciences. Currently, Dr. Reid is playing a leading role in the Megamaser Cosmology Project that seeks to use Reid's techniques to make a direct determination of the Hubble Constant.

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 2019 goes to **Prof. Jay Pasachoff**, Field Memorial Professor of Astronomy and Director, Hopkins Observatory, Williams College, MA, for his lifelong endeavor as a popular and scholarly communicator.

Jay Pasachoff's passion and dedication to the field of astronomy goes beyond his main role as professor and researcher, touching numerous people across all generations. He wrote, in the Peterson Field Guide series, the popular *A Field Guide to the Stars and Planets*, now in the 17th printing of its 4th edition; is lead author of *The Cosmos: Astronomy in the New Millennium*, now in its 5th edition; is coauthor with an art historian of *Cosmos: The Art and Science of the Universe*, a new book on the intersection of art and astronomy; and wrote hundreds of articles, textbooks, and conference series contributions, instilling a love of astronomy to laypersons and students all over the world. His solar-eclipse expeditions, including 35 total eclipses, and primary research in solar eclipses, has led to not only scientific articles but also popular articles in *National Geographic*, *Scientific American*, and elsewhere, as well as media appearances before and after the August 21, 2017, solar eclipse. As one nominator praised after the eclipse: *"It is during these moments that Jay becomes astronomy's cheerleader-in-chief, allowing more and more people to become interested and engaged in the field."*

Pasachoff's leadership roles served within the profession have brought him distinction and acknowledgment as one of only fifteen honorary members of the Royal Astronomical Society of Canada, and the Education Prize of the American Astronomical Society. He has also received the 2017 Richtmyer Memorial Lecture Award from the American Association of Physics Teachers and the 2012 Prix-Jules-Janssen of the Société Astronomique de France. He is acknowledged as having inspired future writers and astronomers, sometimes turning nonscientists into professional astronomical lives of significance. His exuberance for sharing his passion of the universe has created many passionate astronomers.

His research on the Sun is currently supported by a grant from the Solar Terrestrial Program of the Atmospheric and Geospace Sciences Division of the National Science Foundation. He has also held National Geographic and NASA research grants.

In his tireless efforts, Pasachoff has directly affected so many though his radio and television interviews with PBS's NOVA and other radio, television, and web outlets; he has written over 100 articles in such periodicals as *Icarus* and *The Astrophysical Journal* and has taught thousands of students through his lectures inside and outside the classroom. One nominator summed up how "*Jay Pasachoff has devoted his entire career to fathoming the Universe while bringing all of us along with him in the endeavor. For more than a half a century, he has investigated, communicated, and educated – and done so with success, humility, and humor."*

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 2019 Robert J. Trumpler Award is **Dr. Katheryn Decker French**, who completed her PhD in astronomy at the University of Arizona, Tucson (2017).

Decker French's dissertation, "*New Methods for Tracking Galaxy and Black Hole Evolution using Post-Starburst Galaxies,*" is described by one of her nominators as "the most impressive thesis I have ever seen." Her doctoral research focuses on a radio survey of the gas clouds within galaxies that have recently ended the star-forming phase of their evolution. The lack of star formation in these galaxies has long been assumed to be caused by a depletion of the cold, dense molecular gases needed to coalesce into new stars. But by looking more carefully at these galaxies in radio wavelengths, Decker French observed that these galaxies have plenty of cold gas to make stars, but that these gases are not in the dense state required to get the star-forming process going –a finding that fundamentally challenged a long-held assumption about "post-starburst galaxies." One nominator called French's discovery *"one of the most important observational results in galaxy evolution in the last ten years."* If that weren't enough, Decker French's dissertation described yet another groundbreaking discovery – that "tidal disruption events," or instances where a star passes too close to a super massive black hole and is torn apart by gravitational forces – are more common in post-starburst galaxies.

As a testament to the quality and importance of her work, Decker French is currently a Hubble Postdoctoral Fellow at Carnegie Observatories and has won research awards from the University of Arizona's Department of Astronomy, ARCS (Achievement Rewards for College Scientists) foundation, and PEO (Philanthropic Educational Organization), and the National Science Foundation.

Richard H. Emmons Award

Established by Jeanne and Allan Bishop in honor of Ms. Bishop's father, Richard Emmons, an astronomer with a lifelong dedication to astronomy education, the **Richard H. Emmons Award** is awarded annually to an individual demonstrating outstanding achievement in the teaching of college-level introductory astronomy for non-science majors. The 2019 recipient is **Prof. Nick Schneider,** Professor of Astrophysical and Planetary Sciences at the University of Colorado, Boulder, for his serious commitment to teaching and his innovative methods.

Celebrating 30 years in the teaching profession, Nick Schneider brings a selfless dedication to undergraduate education also as an author, instructor and mentor. He co-authored *The Cosmic Perspective*, one of the most highly-regarded "Astro-101" textbooks, now in its 9th edition. With over a million copies in print, his innovative chapters on planetary science have had a national impact on how the subject is taught. He is also co-author on 100 scientific publications, including refereed & review papers and book chapters. Schneider enthusiastically shares his teaching methods with colleagues, junior faculty and graduate students. His teacher training workshops at the Astronomical Society of the Pacific and mentoring at the University of Colorado have impacted other faculty to teach using his methods. One nominator praised how "*His selfless dedication to undergraduate education has also helped me–and I suspect many other colleagues–to become a better teacher."*

Schneider goes beyond the lecture, incorporating some of the most effective advances in college science teaching. As an early adopter of new teaching methods, he helped his department become leaders in the use of "clickers" (response systems) to engage students and judge their understanding of ideas and "Learning Assistants" to facilitate discussions and encourage student engagement and responsibility for learning. In praise of Schneider's methods, one nominator adds *"What you would not see in class is that Nick also makes use of 'Just in Time' teaching. He posts questions on the weekend, and students respond to these before class. Nick uses the responses to adjust what he will teach in class".* He continually strives for ways to include as many students as possible in active discussion and problem solving, even in large classes. His guidance on teaching and pedagogy validates his dedication to undergraduate astronomy education.

Las Cumbres Amateur Outreach 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 2019 award recipient is **Lynn Powers**, President of the Southwest Montana Astronomical Society for her dedication in sharing her knowledge of and passion for astronomy.

As a lifelong learner with a tireless endeavor to share her experiences, Lynn Powers goes beyond her hometown of Bozeman, Montana, to share her passion for astronomy with educators, students, amateur astronomers, and people of all ages. Over 10 years ago, Powers participated in the ASP's Astronomy from the Ground Up and Night Sky Network programs, giving her the skills to do outreach in the community. Some highlighted programs of hers outside of her home State of Montana include being a keynote speaker at "Dakota Nights" in Theodore Roosevelt National Park, and running the very popular Stars Over Yellowstone outreach program for 10 years, offering up public talks, solar telescope viewing, and nighttime star programs. In anticipation of the 2017 Total Solar Eclipse of North America, and as Idaho State Coordinator, Powers coordinated with amateur and professional astronomers from both Idaho and Montana to establish the eight observing sites in Idaho for the Citizen CATE (Continental-America Telescopic Eclipse) Experiment. She hosted training sessions and distributed equipment to her volunteers and ultimately provided some of the best eclipse image sequences of the eclipse.

One of her latest efforts, in conjunction with Astronomers Without Borders, had Powers reaching out beyond the United States to connect online Russian Cosmonauts, from the International Space Station, and students from Montana and Russia, to learn about similarities and differences and how we all understand our "One Sky." Praising her efforts, one nominator noted about this project: *"While this is far different from a typical amateur astronomy observing night (which Lynn also leads on a regular basis), I think it really shows her dedication to sharing her love of astronomy with the world."*

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 century, including Arthur Eddington, Edwin P. Hubble, Subrahmanyan Chandrasekhar, and Vera Rubin. 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, and the Hubble Heritage Project.

More information about the ASP's awards and past recipients can be found at www.astrosociety.org/awards

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