

pumped superradiance in nitrogen, and from there to the fabrication of nitrogen-laser pumped dye lasers, instruments that enabled Heer's group to examine coherent phenomena in atomic sodium vapor. He predicted, and later confirmed experimentally, unique focusing properties of photon echoes in that system.

Heer was keenly interested in the relatively new field of nonlinear optics, and he and his students applied their experience with sodium vapor to studying sum-frequency generation in that material, using simultaneous pumping with two dye lasers and making use of the sharp atomic resonance lines to enhance the optical nonlinearity. Combining that nonlinear effect with coherence effects, Heer's group then studied the optical properties of photon echoes that have been stimulated by three frequencies.

Heer also made significant theoretical contributions to other fields of physics, including the localization of orthopositronium in gases and the effect of weak neutral currents on cosmic hydroxyl.

Among Heer's published works are the textbook *Statistical Mechanics, Kinetic Theory and Stochastic Processes* (Academic Press, 1972), several laboratory manuals, and numerous publications on low-temperature physics, atomic and laser physics, general relativity, and statistical physics. He was a consultant for TRW Inc, Space Technology Laboratories, and Honeywell, and a technical consultant for the US Justice Department. In 1990, the Ohio section of APS honored him with the William Fowler Award.

Colleagues remember Heer with affection. Among the OSU physics faculty, he was known as a man of principle who did not hesitate to express his candid opinion when necessary. Sometimes his was the only dissenting vote in faculty meetings when a decision more convenient than honorable was being considered.

His interests outside of the university involved his great love of the outdoors. He led Boy Scouts on camping and canoeing trips and was an avid hiker and gardener. After retirement, he and his wife traveled extensively in South America, Australia, New Zealand, Egypt, and Turkey.

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Janet Akyüz Mattei

Janet Akyüz Mattei, director of the American Association of Variable Star Observers (AAVSO) for more than 30 years, died on 22 March 2004 in Boston after a valiant battle against acute myelogenous leukemia. Her passing generated an outpouring of remembrances of Janet from professional and amateur astronomers around the world.

Born Janet Hanula Akyüz on 2 January 1943, in Bodrum, Turkey, she was the eldest of five children. She came to the US in 1962 to attend Brandeis University, where she received a BA in general science in 1965. Janet returned to Brandeis in 1968 to spend a summer at the Maria Mitchell Observatory in a program directed for many years by Dorrit Hoffleit. That summer, she became acquainted with variable stars, the AAVSO, and her future husband, active AAVSO member and optics specialist Michael Mattei. She earned master's degrees from Ege University in Turkey (1970) and the University of Virginia in Charlottesville (1972), and subsequently took a position as assistant to the director of the AAVSO.

A year later, Janet became director of the AAVSO when the director retired. At the time, the organization occupied cramped quarters near the Harvard-Smithsonian Center for Astrophysics in Cambridge, Massachusetts. Founded in 1911 under the auspices of Harvard College Observatory, the AAVSO had become independent in 1954. During Janet's tenure, the international, nonprofit association grew from a small, history-rich but resource-poor organization that received 150 000 variable star observations annually and managed them entirely on paper to a fully modern, well-endowed organization that electronically processes 450 000 variable star observations yearly, operates the AAVSO international database, and provides real-time support to space- and ground-based observatories. Janet also oversaw the expansion of the headquarters staff and, thanks to the generosity of long-time member Clinton B. Ford, the acquisition of AAVSO's own building.

From the 1980s on, the AAVSO's traditional area of strength—observing variables over a very long timeline—was expanded under Janet's leadership through several new programs reflecting advances in the field. The first was monitoring cataclysmic variables and immediately alerting astronomers to eruptions so they could begin space- and ground-based observations. An-



Janet Akyüz Mattei

other was a program to pinpoint the sources of gamma-ray burst optical afterglows. In 1982, she earned her PhD in astronomy, under adviser Sezai Hazer, from Ege University for an analysis of long-term AAVSO data on dwarf novae.

Janet opened the door for serious amateur observers to contribute to astronomy. She recognized the value of their contributions and the effort represented by tens of thousands of observations from individual observers who worked voluntarily on their own time and equipment. She also took a personal interest in each AAVSO member and observer. In a 2003 radio interview with amateur astronomer David H. Levy, taped shortly before she was diagnosed with her final illness, she said that when she saw an observation and the observer's initials attached, she could picture that person at a telescope making the observation.

Education, especially of young people, was a passion of Janet's. A number of professional astronomers began their careers at the AAVSO or were mentored by Janet. She codeveloped a successful curriculum to teach the scientific learning process and mathematics through variable star observing and was active in United Nations international astronomy education programs.

Janet's enthusiasm for nature extended beyond astronomy to include flowers, particularly wildflowers, and at meetings people would vie for the opportunity to show her a new one. She delighted attendees at one AAVSO general meeting with a computer slide presentation featuring flowers that faded into astronomical objects with similar form and color. Her office was bright with a mixture of flower photos, astronomical photos,

and the many awards she accepted, she said, "on behalf of the observers and members of the AAVSO."

Hundreds of amateur and professional astronomers around the world whose lives and work she had touched followed Janet's last illness through e-mail bulletins sent by Mario Motto, a cardiologist, AAVSO member, and friend of Janet and Michael Mattei's. During the few weeks between the initial and final rounds of treatment, she used much of her time and most of her energy contacting friends and colleagues worldwide to thank them for their good wishes. The AAVSO website posted more than 200 messages from individuals who remembered her as a friend, mentor, colleague, role model, scientist, and leader. She was that rare combination: a fine scientist and a warm, enthusiastic person who could inspire those she met, even if only once.

Lee Anne Willson

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Harry Louis Melanson

Harry Louis Melanson died on 17 April 2004 in Geneva, Illinois, after a short illness. A high-energy physicist with Fermilab, he carried out research involving the D-Zero experiment.

Born on 28 November 1956 in Washington, DC, Harry spent most of his early years in Maryland. He attended Michigan State University, where he received his BS in physics and computer science in 1978 and his

PhD in high-energy physics in 1985. His thesis experiment (Fermilab E663), carried out in a group headed by one of us (Abolins), was designed to study reactions of pions, kaons, and antiprotons incident on a hydrogen target. The reaction products were analyzed using a downstream spectrometer. During his dissertation work on lambda and antilambda inclusive polarizations, he made important contributions to all aspects of the experiment, including the design of custom trigger electronics, data collection, and the writing of software to perform a long and detailed analysis of the recorded data. The quality of his thesis reflected his rare intelligence and mature physics judgment.

After receiving his degree, Harry joined Fermilab, where he met his future wife, physicist Cat James. He first worked on the deep inelastic muon scattering experiment (E665). Drawing on his training in computer science, he wrote much of the experiment's core software, including the data acquisition and online programs, pattern recognition for track finding, event display, and the summary data format. Much of what he did started out as solutions targeted at relatively small tasks, but his strong, solid approach led to their becoming models that were extended to most or all of the other systems in the experiment.

Harry's scientific legacy on E665 includes the first measurement of jets in deep inelastic scattering—an analysis shepherded from an original idea to publication in *Physical Review Letters* in 1992—and precision measurements of proton and deuteron structure functions. He enjoyed mentoring many students and postdoctoral researchers on the project and continued to be a mentor throughout his tenure on Fermilab's scientific staff. His work in developing software that allowed physicists to analyze data easily has influenced other experiments now carried out by his former students and postdocs.

Harry moved to the collider experiment D-Zero in 1992. After its first run, he led the group on electroweak physics, which produced one of the world's most precise measurements of the W boson's mass. He contributed greatly to the development of software for event simulation, reconstruction, and analysis. Two years before his death, he became the software and algorithm coordinator and was responsible for all the offline software in the experiment.

Still, his D-Zero colleagues remember him best not for his technical achievements but for his quiet good



Harry Louis Melanson

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