

To notify the community about a colleague's death, subscribers can visit <http://www.physicstoday.org/obituaries>, where they can submit obituaries (up to 750 words), comments, and reminiscences. Each month recently posted material will be summarized here, in print. Select online obituaries will later appear in print.

Sun Hong Rhie

Sun Hong Rhie, a former research professor of physics at the University of Notre Dame, died of complications from a peptic ulcer at home in Granger, Indiana, on 19 October 2013.

Rhie was born on 1 March 1955 near Chiri Mountain in Gurae, South Korea, and grew up in Gwangju, where she was a popular and successful student. She had the highest score among women in South Korea on her college preentrance exam; she attended Seoul National University, where she received her bachelor's degree in physics in 1978. Rhie moved to the US for her graduate work and received a master's degree in physics from UCLA in 1982. She then transferred to Stanford University, where she met and married one of us (Bennett), a fellow graduate student. In 1988 Rhie received her PhD with a thesis on heavy fourth-generation neutrinos, supervised by Fred Gilman, and gave birth to her daughter, Clara, later that year.

After a brief break, Rhie returned to research in 1990 with postdoc positions at the University of California, Berkeley, and Lawrence Livermore National Laboratory. At first she focused on the possibility that global topological defects might provide the seeds for galaxy formation. She and Bennett were the first to calculate the full-sky microwave-background anisotropies predicted by topological defects and show that the models were not consistent with observations.

Rhie's most influential work was in gravitational lensing. When the first gravitational microlensing event, MACHO-LMC-1, was discovered in 1993, Rhie noticed that the light curve had a feature that could be explained by a planetary companion. That spurred her work on multiple-lens systems. In 1995 NASA sponsored the Exploration of Neighboring Planetary Systems (ExNPS) studies, which considered the possibility of using a gravitational microlensing survey to determine the prevalence of Earth-mass planets. But it was not known if microlensing was actually sensitive to Earth-mass planets, so ExNPS leaders put out an urgent request to answer that question. Rhie and Bennett were the only ones to solve the problem. In doing so,



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they developed the first planetary microlensing light-curve code, including finite source effects, and enabled the modeling of all types of planetary microlensing light curves.

The pair later realized that a space-based microlensing survey was the only way to detect Earth-mass planets over a wide range of orbital radii, from the habitable zone to infinity. Their concept for a space-based microlensing survey was first proposed to NASA in 2000 and later selected as a part of NASA's *Wide Field Infrared Survey Telescope*, which was the top-ranked large space mission in the 2010 decadal survey of astronomy and astrophysics.

Many of Rhie's most important papers involved the theory of lensing by systems of multiple point masses. She was the first to present the triple lens equations that are used for modeling multiple planet and multiple star-plus-planet events. Her most noteworthy work was her 2003 demonstration, through a beautiful perturbation argument, that a lens system of N point masses can have $5(N-1)$ images for $N \geq 2$. That followed her 2001 conjecture that the maximum number of images for an N point mass lens is $5(N-1)$. The problem is equivalent to a pure analytical question in mathematics concerning the number of zeros of a certain harmonic rational function of degree N .

The other of us (Khavinson) and Genevra Neumann, while working on the mathematics problem, proved that the maximum number of images cannot exceed $5(N-1)$. They were unsure if $5(N-1)$ images could be achieved until another mathematician, Jeff Rabin, referred them to Rhie's work. Their result was considered so noteworthy in pure mathematics, it warranted a 2008 review article in the *Notices of the American Mathematical Society* and an accompanying press release.

Rhie was enthusiastic about exploring the natural world, particularly with Clara. When her daughter was five, Rhie made a family hike in Yosemite National Park so much fun by singing and skipping along the trail that Clara managed an eight-mile hike without complaint. And no visit to Hawaii Volcanoes National Park was complete without Rhie scooping a dollop of lava from an active flow.

In her later years, Rhie was diagnosed with schizophrenia. The disease limited her ability to continue the research she loved and to tolerate the refereeing of her papers; as a result, much of her work is published only at arXiv.org. The side effects from her treatments interfered with her intellectual work, and she voiced much frustration with the lack of scientific and medical understanding of the devastating disorder.

A special session at the January Microlensing 18 meeting devoted to Rhie's work is available at http://www.nd.edu/SHR_ML18.

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Lewis Worth Seagondollar

Lewis Worth Seagondollar, longtime secretary of the Southeast Section of the American Physical Society, influential president of the physics student honor society Sigma Pi Sigma, and emeritus professor of physics at North Carolina State University, died at his home in Raleigh on 20 September 2013.

Born in Emporia, Kansas, on 30 September 1920, Worth graduated from what is now Emporia State University in 1941. He enrolled soon after in graduate school at the University of Wisconsin-Madison and began working with Raymond Herb on accelerator construction. In 1944 he went to Los Alamos to join the Manhattan Project,