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, 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.

Sun Hong Rhie

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.

David P. Bennett
University of Notre Dame
Notre Dame, Indiana
Dmitry Khavinson
University of South Florida
Tampa

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,

and he found himself in the spring of 1944 as part of a three-person team that measured the critical mass of plutonium-239.

As the junior member of the team, Worth worked the overnight shift. In an episode that encapsulates his unfailing optimism that every problem has a solution, he succeeded in hammering out a small dent in one of the plutonium hemispheres after it was dropped on a table. Stationed nine miles away in Alamogordo, New Mexico, Worth witnessed the first nuclear test, and his experiences formed the basis of a memorable presentation he gave hundreds of times to civic and student groups over the following 50 years.

Worth returned to Wisconsin in 1948 and, as the first student of Heinz Barschall, completed a dissertation in 1947 on fast-neutron cross sections on aluminum. He then participated in the installation of the research Van de Graaff accelerator at the University of Kansas. Worth worked as a professor of physics at Kansas before moving in 1965 to NC State, where he served as head of the physics department for 10 years. While at NC State, he cofounded the Triangle Universities Nuclear Laboratory and measured nuclear cross sections with secondary neutron beams and with cryogenic polarized targets.

BRAND FORTNER, NCSU PHYSICS DEPARTMENT

Lewis Worth Seagondollar

After retiring in 1991, he remained as professor emeritus; younger researchers gratefully remember his willingness to help and advise them.

Worth offered years of dedicated service to ΣΠΣ and to the Society of Physics Students (SPS). It was during Worth's tenure as ΣΠΣ president that the honor society merged with the American Institute of Physics (AIP) to form SPS. According to ΣΠΣ's official history, as the presiding officer, Worth "allowed everyone to have his say and yet kept to the agenda (while he 'chain-smoked 75 cigars!')." Needing a two-thirds majority to pass, the articles of agreement between AIP and ΣΠΣ were approved with one vote to spare, 181 out of 270 (see Donald Cunningham and coauthors, PHYSICS TODAY, September 1968, page 59). The honor society later instituted the Worth Seagondollar Service Award to recognize an exemplary level of commitment and service to SPS and ΣΠΣ. He was the first recipient.

Worth's 23 years as secretary of the Southeast Section of the American Physical Society was the longest tenure of anyone in that position. He steered the section through a period of rapid growth in the physics departments and research facilities in the Southeast and associated growth in participation at section meetings. He received two of the section's highest awards, one for excellence in teaching physics in the Southeast and the other for service to the section.

In retirement, and well into his eighties, Worth remained an active speaker and was invited to give many talks; he felt particularly honored to speak at the ΣΠΣ quadrennial meeting in Albuquerque in 2004. For many years he also set his scientific and managerial

skills to planning and executing yard-sale shopping trips. He was known for his early use of GPS to optimize shopping routes. Worth was one of only a few people to ever buy a used, working Mercedes-Benz at a yard sale. He also found many pieces of semi-antique scientific equipment in similar unlikely venues.

Chris Gould
David Haase
North Carolina State University
Raleigh

Nicolaas Godfried van Kampen

Nicolaas Godfried van Kampen, a theoretical physicist who was instrumental in the development of modern statistical mechanics and scattering theory, died in Nieuwegein, the Netherlands, on 6 October 2013. He was an emeritus professor of theoretical physics at the University of Utrecht. For many years he served as the conscience of theoretical physics in the Netherlands and throughout the world.

Nico was born into an intellectual family in Leiden on 22 June 1921. His mother's brother, Frits Zernike, was a professor of physics in Groningen and received the Nobel Prize in Physics in 1953. Nico's nephew Gerard 't Hooft shared the 1999 Physics Nobel.

In 1939 Nico studied physics and mathematics at the University of Leiden. A year later the Germans occupied the Netherlands, and the university was closed soon after. Although he wasn't Jewish, Nico was the right age to be shipped to Germany as forced labor, so he learned to be evasive and disappeared periodically. During the Nazi occupation, his family hid at least one refugee.

Nicolaas Godfried van Kampen

Nico moved to Groningen to continue his studies under Zernike. He obtained his diploma in 1947 and returned to Leiden the next year to work on his doctorate under Hendrik Kramers, whom he greatly admired. He received his doctorate in January 1952. In his thesis, on the quantum theory of light scattering, he discussed the interaction of an electron with the electromagnetic field and incorporated some of Kramers's work on renormalization.

After spending the next year at the Institute for Advanced Study in Princeton, New Jersey, Nico returned to Leiden. In 1955 he became a lector at Utrecht and in 1958, a professor. Over the years he was a visiting professor at Columbia and Harvard Universities, MIT, and other institutions.

Nico's research covered such a broad range of topics in physics and philosophy that it is difficult to summarize all his contributions. His publications frequently dealt with fundamental concepts that have become significant in the history of physics. His first papers expanded on his thesis work and on the analytic properties of the *S*- and *R*-matrices. His research on the *S*-matrix provided a foundation for a myriad of publications on scattering.

Soon Nico turned his attention to statistical mechanics. In 1955 he studied the dispersion equation for plasma waves, in which he discovered what are now known as the van Kampen modes. In 1961 he developed a powerful new technique for obtaining cluster expansions for a classical gas. With Ubbo Felderhof, Nico wrote *Theoretical Methods in Plasma Physics* (North-Holland, 1967).

Additionally, in 1968 Nico clarified the field of relativistic thermodynamics, which greatly needed it. He studied the one-dimensional van der Waals gas in 1970 and obtained insight into the properties of systems with infinite range potentials.

One of Nico's most important contributions is his 1981 book *Stochastic Processes in Physics and Chemistry* (North-Holland), from which vast numbers of students have learned the topic. His work on stochastic differential equations, which started in 1975, also had vast applications and led to interesting research on nonlinear irreversible processes. Another important contribution was his 1985 paper on elimination of fast variables, which provided an extremely simple technique for deriving Langevin and Master equations and their generalizations. Although Nico's views on quantum chaos were controversial at first, they are now widely shared. The same is true for his 1988 ideas about quantum measurements.

Nico waged battles in print and in seminars with the practitioners of what he called *waanwetenschap*, or pseudoscience. That sometimes earned him the title *Pietje Precies*, which meant he was overly precise in his scientific view and that something valuable was lost in the process. I strongly disagree with the epithet and with the thought behind it.

Physics probably was Nico's true love. He never married and lived a fairly abstemious life. He was widely read—the weight of his library sank the foundations of the converted farmhouse that he loved and lived in for many years—and he had a warm and interesting personality.

He and I made many trips together. Before I married, we traveled to Hammerfest, Norway, to experience the midnight sun and to Afghanistan, where we saw extraordinary things, including its large Buddhas. After I got married we traveled *en famille*—my wife, Bernice, and our son, Josh, enjoyed Nico's company. On a trip to Sicily, Nico demonstrated his map-reading ability by getting us lost for hours along a road that ended in deserted countryside.

Nico's students characterized him as an honored teacher. After his death, one of his Canadian nephews wrote to me and gave this beautiful description: "We do miss Nico's mordant wit as well as his kindness and loyalty. When we were children my brothers and I thought that his mixture of ironic humour and high intelligence was typical of all Dutchmen. Only later did we learn how singular he was."

Irwin Oppenheim
Massachusetts Institute of Technology
Cambridge ■

Recently posted notices at http://www.physicstoday.org/obituaries:

Alvin Russell Hagler
19 March 1934 – 1 December 2013
Daniele Sette
1918 – 2 November 2013
Riazuddin
10 November 1930 – 9 September 2013
Peter A. Wolff
15 November 1923 – 5 September 2013
Richard George Barnes
19 December 1922 – 5 August 2013