IN MEMORIAM

Edward J. Hoffman, PhD, 1942–2004

It is with great sadness that we announce the passing of Edward J. Hoffman, PhD, on July 1 at the University of California at Los Angeles (UCLA) Medical Center. Ed died after a short and courageous battle with cancer, characteristically working right up to the moment of his death. Ed was a loyal mentor, respected colleague, and, most important, a true friend to many of us in the nuclear medicine community.

Ed was born in St. Louis, MO, on New Year's day, 1942. Although he is known throughout the world for his contributions to nuclear medicine instrumentation and physics, his formal training was actually in chemistry. He obtained his bachelors degree from St. Louis University in 1963 and went to graduate school at Washington University, where he studied a range of nuclear structures under Dr. Demetrios Sarantites. It was there that Ed met Carolyn (at that time an undergraduate majoring in political science). They married in 1971, and she remained his best friend and constant companion during his journey through life. It was also here that he met Michael Phelps, starting a friendship and professional collaboration that was to last 39 years and prove pivotal to the development of PET. Ed graduated with his PhD in nuclear chemistry in 1970.

After a short postdoctoral interlude in Philadelphia, PA, Ed was reunited with Mike in 1972 at Washington University. They sought to take advantage of the availability of short-lived positron-emitting isotopes generated by the cyclotrons introduced into the medical school by Michel Ter Pogossian and the labeled compounds incorporating these isotopes being produced by Michael Welch. Mike Phelps and Ed formed a small group that included Henry Huang and Nizar Mullani. The group worked day and night on a shoestring budget to develop a series of prototype tomographic PET scanners from which today's clinical systems are directly descended. The results of their first prototype PET system were published in *The Journal of Nuclear Medicine* (*JNM*) in 1975 (*1*), followed just 1 year later by a paper characterizing the performance of a whole-body human scanner and showing the first human images (*2*)—an astonishing rate of progress by any measure. The ECAT scanner, the predecessor of the first commercial PET scanners, was described in *JNM* in 1978 and became a reference classic (*3*).

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Despite Ed's critical role in the development of PET as we know it today, he is probably best known for his later publications setting forth the physical basis for quantitative PET imaging. Ed, along with Mike Phelps and Henry Huang, moved to UCLA in 1976 and coauthored the famous series of "Quantitation in Positron Emission Computed Tomography" papers published in the *Journal of Computer Assisted Tomography*. These papers have become enduring classics, standing the test of time despite tremendous advances in technology. Ed's first paper in this series, characterizing and quantifying the partial volume effect, has been cited more than 650 times and is one of the most cited publications in the entire field of nuclear medicine (*4*).

Together with Magnus Dahlbom in the late 1980s and early 1990s, Ed and Mike led the development of the methodology for whole-body PET (*5*). Ed also introduced the famous Hoffman brain phantom, a realistic 3-dimensional (3D) representation of the complex spatial distribution of ^{18}F-FDG and blood flow tracers in the human brain (*6*). Other examples of important contributions during those years were the development of the first dedicated animal PET scanner (*7*), methodology for detector normalization (*8*), early characterization of 3D PET (*9*), and the study of bismuth germanate block detectors (*10*), especially the effects of dead time and pile-up (*11*).

During the last 10 years, Ed focused much of his attention on the development of compact nuclear medical devices, including imaging probes (*12*) and small gamma cameras for breast imaging, in which work he enjoyed a close collaboration with his friends and colleagues at Photon Imaging, Inc. His most recent research paper, describing an intravascular probe for vulnerable plaque, appears in the July–August issue of *Molecular Imaging and Biology*. In total, he has left us with close to 300 publications, 24 of which appeared in this journal and many of which will continue to be essential reading for practitioners of nuclear imaging for years to come.

In addition to Ed's prolific research accomplishments, he made other vital contributions to our field. He provided tremendous service, especially to the Institute of Electrical and Electronic Engineers (IEEE), where he championed the cause of the physicists and engineers working in the nuclear medical sciences for well over a decade, helping expand the IEEE Medical Imaging Conference and establishing it as the single most important venue for presenting instrumentation and physics-related developments in our field. He also raised the profile and the quality of *IEEE Transactions on Nuclear Sciences*, serving for many years as the editor for papers in the nuclear medical sciences. For these contributions, along with his research accomplishments, he was elected a fellow of the IEEE in 1998 and received the prestigious Medical Imaging Scientist Award in 2002. At the time of his death, Ed was president of the IEEE Nuclear Sciences and Plasma Society.

Ed was also devoted to the training of future scientists. He trained scores of graduate students and postdocs in his laboratory, all of whom have gone on to highly successful careers, many remaining in academic nuclear medicine. He was an outstanding mentor, who created a scientific playground where he carefully nurtured and encouraged his protégés. In addition to those trained in his own laboratory, he was also the director of the Biomedical Physics Graduate Program at UCLA from 1992 until his death. He worked tirelessly to recruit, fund, and mentor top quality students in the program. He knew every student in the program personally. To him, every student was an individual, not a mere GPA statistic. The program grew immensely in stature through his efforts, and one of his last acts was to make a substantial personal donation to the program to help ensure its future growth. In recognition of Ed's commitment to graduate education, UCLA has used this donation to create the Edward J. Hoffman Graduate Fellowship Fund to train students in biomedical physics.

Finally, but most important, we come to Ed as the man we all loved and respected. Put quite simply, Ed enjoyed life. He enjoyed his work, his friends and colleagues, meetings and conferences, and dancing—especially at the annual SNM parties! Ed's enduring traditions include the annual biomedical physics beach picnics, singing carols around the piano at the Hoffman home at their annual Christmas party, and the celebration of successful PhD defenses at a pub in Westwood Village. Ed and Carolyn were the center of these events, bringing people together for a good time and reinforcing the value of friendship.

It's difficult to do justice to Ed's life, his accomplishments, the impact of his work, and the positive influence he had on those who studied under or worked with him. We have been robbed, all too early, of a tremendous scientist, colleague and trusted friend. If there is any comfort, it is that we have many wonderful memories of the time we spent together, and that his spirit will continue to live in all of us who have been fortunate enough to be part of his life. There is a little bit of Ed that remains in all of us, and we are all the better for it.

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Members of the nuclear medicine community may make donations in Dr. Hoffman's memory to the Edward J. Hoffman Graduate Fellowship Fund. Contact Terry Moore at 310-825-7811 or e-mail tlmoore@mednet.ucla.edu for additional information.

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