Richard Allen Arndt, a gifted and dedicated nuclear theorist and phenomenologist, passed away on 10 April 2010 at his residence in Blacksburg, Virginia, after a decades-long battle with carcinoid syndrome.

Born in Cleveland, Ohio, on 3 January 1933, Dick’s studies in physics began in 1953 at Case Institute of Technology after two years in the Naval Reserve Officer Training Corps. He received a bachelor’s degree in 1957 and took a position in an engineering group at Northrop Aviation in California, developing a climate-control system for guided missiles. Two years later he was appointed junior physicist with the Lawrence Radiation Laboratory in Livermore and started graduate studies at the University of California at Berkeley, while working full time at the lab. He quickly gained remarkable facility at coding and this caught the attention of H Pierre Noyes, who solicited his interest in “doing some partial wave analysis”. Working with Noyes, Henry Stapp and Michael Moravcsik, he gained valuable experience with numerical methods to perform phase-shift analyses of proton–proton scattering.

He began thesis research under Geoffrey Chew at Berkeley and Malcolm MacGregor at Livermore, developing a number of algorithms to solve the phase-shift analysis problem. The field of phase-shift analysis was, at that time, in a state of confusion regarding the uniqueness and stability of the solutions. Dick made a crucial contribution to the field by employing the well known but previously not applied observation that, at small scattering energies, only partial waves with low-orbital angular momentum contribute to any observable. This groundbreaking work led to a method of solving the phase-shift analysis problem in an essentially unique and smooth fashion. Codes that were developed at this time are still in use today.

So began Dick’s nearly 45-year productive life as a self-proclaimed, if exceedingly humble, “phenomenologist”. He published a series of 10 highly cited papers on the determination of the elastic nucleon–nucleon scattering matrix with adviser MacGregor and other collaborators, including Noyes and Robert Wright at Livermore in the period immediately following the completion of his dissertation in 1965.

Dick subsequently accepted a position at Virginia Polytechnic Institute and State University (VPI & SU) as an assistant professor of physics attaining the rank of full professor by the middle of the 1970s. He was elected as a fellow of the American Physical Society on 27 January 1973. During this time he had an academically profitable collaboration with many, including L David Roper with whom he published upwards of 50 papers in just over two decades; four of these have been cited more than 100 times. Much of the research in these papers resulted in the Scattering Analysis Interactive Dial-in (SAID) suite of analysis and database codes for which Dick is recognized across many fields of physics. The SAID facility, one of the earliest applications of network technology, is accessed through its online interface, to this day, by hundreds of scientists from around the world on a monthly basis.

Dick retired from VPI & SU in 1996 but remained a highly productive adjunct member of the faculty of the George Washington University (GWU) and professor emeritus of VPI & SU. His impact on the field of hadron spectroscopy, much of it made while at GWU after retirement, is singular. Many of the discoveries of the non-strange nucleon resonances were identified through Dick’s analyses and can today be found in the Review of Particle Properties.

Dick’s friends and colleagues alike remember him for his rapier wit, a nimble mind and an invariably kind and selfless generosity – a true gentleman and scholar. His humility precluded true boasting of any sort but his sense of humour permitted such conceits as stating that he had “written more programs than anyone east of the Mississippi”. He was a dedicated husband and true partner to his beloved wife Donna, a devoted father and an avid fisherman. Despite a difficult childhood and challenging familial losses throughout life he always maintained a cheerful and convivial disposition. He asked us, at the latter stages of hospice care, to think of him as, “Not gone. Just gone fishing”.