

Richard M. Heinz

Richard M. Heinz, scholar, teacher, mentor, and professor at Indiana University since the fall of 1966 will retire after 39 years of extraordinary service to the university and to the world of the physics of high energy. Innovative research, generative teaching, and dedicated service are the hallmarks of the Heinz legacy. In the words of one of many delighted students, "The man is excited about teaching [physics]! It's something to tell my grandchildren." His influence on the field of physics is immense, not only because of his own work in the field but also through the teaching and research of his students.

Graduating in 1961 with a B.S. degree in engineering physics from the University of Toledo, Dick went on to the University of Michigan where he rapidly earned an M.S. (1962) and Ph.D. (1964). His research in high energy physics at this early stage was notable first because this exciting field was so new, and second because Dick contributed to both theory and experiment in a field where others chose one or the other. With an NSF postdoctoral fellowship in hand, Dick spent the next year at the prestigious European Center for Nuclear Research (CERN) as a visiting scientist and in 1966 began his remarkable career at Indiana University as a new assistant professor.

Shortly after his arrival at IU Heinz established a new research team of high energy physicists. Within a year he applied for and received federal funding, an accomplishment that would continue throughout his 39 years at IU. The new group centered its research activities around the development and use of a new breed of detection devices called spark chambers. These devices could be sensitized on demand, a great improvement over the older cloud and bubble chambers. New and exciting experiments were now possible. With these new detecting devices Heinz and his group of Indiana physicists carried out a series of exploratory experiments investigating particle scattering and the production of new particles not seen before. Heinz's group was active at accelerators both in the United States and abroad. His team did experiments at Brookhaven on Long Island, Argonne and Fermi near Chicago, SLAC at Stanford, and CERN in Geneva, Switzerland.

Dick's strong research and teaching record carried him rapidly through the professorial ranks. Within seven years of his arrival at IU Heinz was already a tenured full professor. His federal research funding grew rapidly. With collaborators from Europe Heinz and his group launched an experiment at CERN that explored the characteristics of several mesons containing the recently discovered charmed quark. In 1976 Leon Ledermann's group at the Fermi Laboratory discovered evidence for a new constituent of matter called the bottom quark. Using data from the CERN experiment, Heinz looked for evidence of "B mesons," particles containing this new bottom quark.

Equally interesting to the physics community was P.A.M Dirac's idea from the 1930s that a heavy magnetic monopole might exist in nature. As accelerators have insufficient energy to create such heavy particles, Heinz and others realized that nature might create them and that one might look to cosmic rays. Marking a turning point in Heinz's research career, he and others created a proposal called MACRO to detect magnetic monopoles. MACRO, a gigantic detector, would be installed in the Gran Sasso tunnel in the Apennines Mountains in Italy. Though MACRO did not find a magnetic monopole, it served as an excellent detector for numerous other cosmic ray measurements. Following this novel research direction, Dick established a new research group at IU called the High Energy Astrophysics Group. He immediately received federal funding for this new effort and has continued to do so for the last 19 years. In addition, Dick served as the scientific spokesman for this group from its inception in 1987 to 2001. Following his work on MACRO, Dick and his group became founding members of the Main Injector Neutrino Oscillation Search (MINOS), an experiment designed to provide precision measurements of neutrino mass differences. MINOS will begin data taking in spring 2005.

As a master teacher Dick Heinz has helped to form the vision of physics for thousands of students here at IU. His outstanding contributions to the teaching of physics are measured mainly by the pleasure he brings to students who take his classes. His large physics lecture courses are famous throughout the university. That being said, Dick's influence through the courses he has created is at least as large. In 1979 Dick developed two courses for introductory students called Energy (P110) and Energy and Technology (P120). These courses have been taken by typically 200 to 300 students a year since 1979. Most of these students are not scientists, but are persuaded of the value of science through this course. In 1985 Dick invented another course called High Energy Astrophysics (G650), a course close to his own new research interests at this point in his career. These courses will continue to guide and influence students beyond Dick's retirement.

Throughout his 39 years as a part of Indiana University Dick has been a model citizen, providing leadership at all levels. Yes, he has chaired numerous committees and these efforts are an important part of

that service. However, Dick has also been asked to take on more extensive leadership roles. For the larger physics community, for example, Dick chaired the committee of examiners for the physics Graduate Record Examination of the Educational Testing Service in Princeton for many years. Here in Bloomington Dick has also served on the board of the Indiana University Credit Union and has been its chair for several of those years. Wherever Dick chooses to serve, he has been effective.

In summary, Indiana University will miss its soon-to-retire scholar, teacher, mentor, and professor. Thirty-nine years of the dedicated and effective attentions of Richard Heinz to this university do indeed amount to extraordinary good fortune for Indiana University. May we follow the model he sets for us.

Bennet B. Brabson