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OBITUARY

MIGUEL ANGEL HERRERA ANDRADE
1944–2002

The Instituto de Astronomía, UNAM, is in deep sorrow because of the loss of a very dear colleague and friend; Miguel Angel Herrera passed away as the result of an automobile accident while being driven from Guadalajara to Mexico City on a rainy evening on July 29. Traveling with Miguel Angel, his wife Carmen Salinas also lost her life.

Miguel Angel started his astronomical career as my assistant at the IA-UNAM in 1972, modeling the light curves of type II Supernovae, which led to his Bachelor Degree at the Facultad de Ciencias UNAM. Years later, in 1988, Miguel Angel got his Ph.D. in Physics on the subject "*Some Aspects of the Hydrodynamics and Thermodynamics of Relativistic Gases*".

His first research publication, with E. Daltabuit, was on the subject of reaction rates and chemical kinetics of molecular hydrogen formation on the surfaces of interstellar grains. His Ph.D. thesis led to various papers, some with S. Hacyan, his thesis advisor, on high temperature relativistic hydrodynamics, a subject relevant to the understanding of the physical conditions in the Big Bang.

Early in his career, Miguel Angel showed not only his ability to grasp the fundamentals of physics relevant to astronomy, but also an enjoyment of observational work, and so we count him among the early observers at the San Pedro Mártir Observatory; this work led to some papers on spectroscopic observations of supernova remnants and of Seyfert galaxies.

Some time later, in 1989, Miguel Angel approached me again with the idea of working together on a subject "closer to us, in space and time, than the Big Bang" a problem on which he had worked early in his career. At that time I was working with C. Allen on the dynamical evolution of double and multiple stars and so Miguel Angel, Christine, and myself started a fruitful collaboration that lasted until his death.

Because of our involvement with the University Space Program, we got interested in asteroidal and cometary impacts (Chicxulub Crater and the like). Our collaboration in this area led us to publish a couple of papers on the frequency distribution of diameters of earth crossing asteroids, and on the expected frequency of impacts of meteorites with cars and airplanes.

Miguel Angel's broad interest and grasp of physics and mathematics was an important asset in our work. His broad understanding and interest in astronomy and science in general was unusual, particularly in modern times, when research in astronomy has become so narrowly oriented. Also remarkable was his exceptional ability to popularize astronomy.

Miguel Angel was a very active and successful lecturer and writer. Of particular importance was his commitment against pseudo science and superstition. Thus, he participated in many TV shows and panel discussions with UFO fans; here, the public had the oportunity to contrast rational criticism against unsubstantiated claims, and to watch the scientific method in action. By the time of his death he had delivered more than 500 public lectures, written some 40 popular articles on astronomy, and 17 books. The latest, just published: "*¿Para qué sirve la Física*?" (What is Physics Good For?) is addressed to undergraduate students of physics, and aims to make them aware of how physics is fundamental to our understanding of nature, from biophysics to astrophysics.

Miguel Angel had a wonderful sense of humor and a warm, outgoing personality that gained him many friends. His lectures, always full of literate puns and jokes, were extremely popular. He will be sorely missed by the many friends, colleagues, students, and admirers that he left throughout México.

At the time of his death, he was Associate Director of the Center for the Popularization of Science. His two sons: Leonardo (29) and Héctor (27) are continuing the cultural tradition of the Herrera family.

Arcadio Poveda