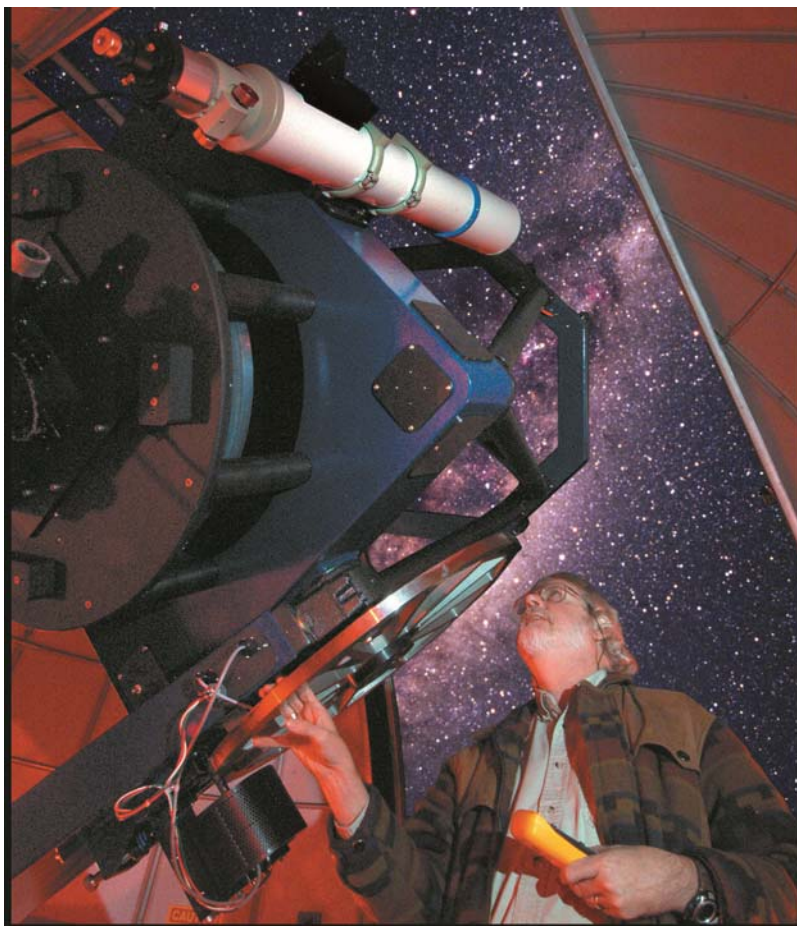


ASTRONOMY



Michael Hibbs

B.S. Physics – University of Texas at Arlington, 1977

M.S. Physics – Stephen F. Austin University, 1980

Ph.D. Interdisciplinary Engineering – Texas A&M University, 1988

Selected Papers

"Using Summer Camps to Motivate Rural Students in Science and Engineering", D. Martinez, et al., Proceedings of the 33rd ASEE/IEEE Frontiers in Education Conference, Boulder, Colorado, 2003

"Measurement of Microscopic Displacements in Graphite/Epoxy Composite Materials Using A SEM- Generated Surface Map," Robert C. Burghardt, et al., Scanning, March 1991

"Interlaminar Fracture Toughness and Real-Time Fracture Mechanisms of Some Toughened Graphite/Epoxy Composites", Michael F. Hibbs, et al., Toughened Composites, ASTM STP937, 1986

ASTRONOMY

Michael Hibbs' interest is in astronomy with an emphasis on transient events. Specifically, the discovery, astrometry (position and orbits), and photometric (analysis of light) properties of asteroids, and the early detection and analysis of the resulting light curves of distant supernovae. Asteroids are rocky bodies that orbit the Sun with diameters ranging from less than a meter to more than 900,000 meters. Asteroids are of interest to astronomers because the orbits and composition of asteroids give us clues to the origins of our solar system and because as a recent popular movie portrayed some asteroid's orbits have been perturbed so that they cross the Earth's path and therefore could pose a potential hazard to life on this planet. A supernova is the catastrophic collapse of a star resulting in the formation of a neutron star or black hole. The monitoring of the initial intensity and subsequent diminishing of the light emitted from these events gives us insight into the final stages of a star's life. The assumption that the maximum brightness in the first few weeks of the event is approximately the same for all supernovae has led them to be used as "standard light candles" to determine the distance and expansion of the universe. There is still controversy whether this theory holds for all supernovae. If not, the finding will have extreme ramifications in astrophysics and our view of the universe.

Before starting his academic career, Hibbs worked for twelve years in composite materials research and application at General Dynamics/Lockheed. Among his many projects was the F-22 Fighter where he was involved in the selection, development, testing and design of composite structures. During this time, he also was involved in a variety of astronomy outreach activities including organizing local star parties in North Texas and was an adjunct physics instructor at Texas Christian University and Tarrant County College teaching astronomy. Prior to this, in 1977-1978 he taught 7th - 12th grade science and physics at Nolan High School in Ft. Worth. He joined the faculty at Tarleton in 2000 and was responsible for the design and construction of both the Digital Planetarium and the Observatory with its research grade, internet controlled 32" Ritchey-Chretien telescope and data acquisition system.

Hibbs and his students use the research telescope to image extremely faint (100,000's times fainter than what the human eye can detect) astronomical targets including asteroids and supernova in seven different wavelengths. The team has been, and continues to be, responsible for the discovery and confirmation of many new asteroids. In this activity, students interact and work directly with leaders in the asteroid field from all over the world including members of the International Astronomical Search Collaboration (IASC) and International Astronomical Union's Minor Planet Center. Since supernovae are extremely rare events within an individual galaxy, the team images Abell clusters. These clusters of hundreds to thousands of galaxies appear close together because of their distance from earth and can be captured within a single field of view of a telescope thus vastly increasing the chance of detecting a supernova event. Hibbs also involves Texas high school teachers and students in his research as part of the International Astronomical Search Collaboration where teachers from over 300 universities and high schools in 40 different countries are engaged in improving high school and college science education through astronomy research.