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Joel A. Eaton (1948–2022)

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Joel Acree Eaton died unexpectedly of natural causes on September 26, 2022 while on his annual bicycle tour in southern Wisconsin. He was 74.

Eaton was born on January 2, 1948 to Judge Warren and Molly Eaton of Paducah, Kentucky. He attended Auburn University and graduated in 1970 with highest honors and a B.S. in Physics. He also received the Comer Medal for Excellence in Physical Science. He went on to Vanderbilt University, graduating in 1971 with an M.Sc. in Astronomy, and earned his Ph.D. at the University of Wisconsin-Madison in 1975. His dissertation titled “An Analysis of Eclipsing Binaries with Significant Tidal Distortion” was done under the supervision of Dr. Robert Charles Bless.

Eaton’s career took him to the University of Alabama as a Visiting Assistant Professor (1975–1976), the NASA-Goddard Space Flight Center as an NAS-NRC Resident Research Associate (1976–1978), Pennsylvania State University as an Assistant Professor (1978–1979), Vanderbilt University as Assistant Professor (1979–1983), Indiana University as an Associate Scientist (1983–1989), and Tennessee State University as a Research Scientist in the Center of Excellence in Information Systems (1989–2009).

Eaton was particularly interested in chromospheric variations and winds in cool giant stars. He explored the eclipses in ζ Aurigae binaries, which consist of a K supergiant and a companion B star. During the eclipse of the B star by the chromosphere of the supergiant, the B star’s light acts as a probe of the chromosphere, which can then be modeled.

A two-spot model has often been used to characterize the light curves of chromospherically active, late-type (RS CVn) stars in order to estimate spot lifetimes and the degree of differential rotation. As an alternative, Joel examined random-spot distributions. He found that a relatively large number of medium-sized spots could account for the long-term light curve changes of very spotted magnetically-active stars.

Eaton was an early advocate for robotic telescopes. In 1995 during his tenure at Tennessee State University, an historically black university, Joel began to explore the possibility of building a 2 m Automatic Spectroscopic



Photo credit: unknown.

Telescope (AST) coupled to a fiber-fed echelle spectrograph and CCD detector. The telescope, which he designed and built essentially single-handedly, came to fruition and began operation at Fairborn Observatory in southern Arizona in June 2003, the first of its kind. Eaton then commenced monitoring the radial velocities and H-alpha line profiles of several hundred cool giant and supergiant stars. The culmination of this work occurred in 2020 when Joel published 35,000 radial velocities for 348 stars from spectra obtained between 2003 and 2009 with the AST. Most of the stars are late-type giant, single-lined spectroscopic binaries.

Most recently, Eaton and his collaborators produced several papers on W UMa contact binaries and related systems. At the time of his death, he was working on an extensive analysis of the Wolf-Rayet binary V444 Cyg. Joel was a long-time member of the American Astronomical Society, the Astronomical Society of the Pacific, the International Astronomical Union, the National Rifle Association, and the Society of Manufacturing Engineers.

Joel was a confirmed Catholic and Episcopalian. At the time of his death, he was Senior Warden at St. Andrews Episcopal Church in New Johnsonville, Tennessee. He was an avid cyclist, hiker, hunter, Friend of Johnsonville State Historic Park and member of St. Vincent de Paul Church in McEwen, Tennessee. He is survived by Susan, his beloved wife of 30 years, brother Bill Eaton of Klamath Fall, Oregon, sister Dr. Molly Eaton of Denver, Colorado, and many nieces and nephews. His Automatic Spectroscopic Telescope continues in routine operation to this day.

See also [Eaton's AstroGen entry](#).