# Matt A. Wood

B.S. Physics – Iowa State University, 1979

M. S. Astronomy – The University of Texas at Austin, 1985

Ph.D. Astronomy – The University of Texas at Austin, 1990

## Selected Papers

"V344 Lyr: A Touchstone SU Uma Cataclysmic Variable in the Kepler Field" Wood, M.A., Still, M.D., Howell, S.B., Cannizzo, J.K., & Smale, A.P., 2011, ApJ, 741, 105

"Kepler Observations of V447 Lyr: An Eclipsing U Gem Cataclysmic Variable" Ramsay, G., Cannizzo, J. K., Howell, Steve, B., Wood, M. A., Still, M., Barclay, T., Smale, A. P. 2012 MNRAS, 425, 1479

"SPH Simulations of Negative (Nodal) Superhumps: A Parametric Study" Wood, M.A., Thomas, D.M. & Simpson, J.C 2009, MNRAS, 398, 2110

"Synthetic Direct Impact Light Curves of the Ultracompact AM CVn Binary Systems V407 Vul and HM Cnc" Wood, M.A. 2009, MNRAS, 395, 378

# ASTROPHYSICS

Dr. Wood's studies both theoretical and observational aspects of close interacting binary stars and of the white dwarf stars. His primary research area is the numerical modeling of the accretion flows between the interacting close binary stars known as cataclysmic variables. Dr. Wood models the fluid dynamics of accretion disks and uses the model results to improve our understanding of the observations of these systems, and to generate computer animations of cataclysmic variable systems for use in the classroom. Most recently, Dr. Wood has been working with a team analyzing cataclysmic variable data obtained from the NASA *Kepler* satellite. The *Kepler* data are of a quality and quantity that are unprecedented in the history of astronomy. There are 16 known cataclysmic variables in the *Kepler* field. Three of these have been observed with a 1-min cadence nearly continuously for over 3 years, and data collection continues still. These data have revealed new aspects of cataclysmic variables never before seen. Perhaps most interesting, the data indicate that the accretion disk can become tilted out of the orbital plane and precess in the retrograde direction. This was known, but what is new in the *Kepler* data is that the rate of precession changes in response to the changing mass distribution in the accretion disk as it cycles through high and low states. These data promise to help reveal the fundamental nature of astrophysical viscosity.