GD358: The Case for Oblique Pulsation and Temperature Change

M. H. Montgomery

Department of Astronomy and McDonald Observatory, University of Texas at Austin, Austin, TX, USA

Convective driving, the mechanism originally proposed by Brickhill for pulsating white dwarf stars, has gained general acceptance as the generic linear instability mechanism in DAV and DBV white dwarfs. The nonlinear formulation of this mechanism is able to successfully reproduce the observed light curves of many pulsating white dwarfs, thereby providing information on the average depth of a pulsating white dwarf's convection zone and the inclination angle of its pulsation axis. Using recent and archival data we provide a determination of the average depth of its convection zone in two different epochs, and we argue that the discrepancy between these determinations can be explained by a difference in surface temperature in the two epochs. In addition, we find that the oblique pulsation model provides an excellent fit to two sets of triplets found in the 2006 WET data. This marks the first time that oblique pulsation has been identified in a variable white dwarf star.