

WHITE DWARFS FROM THE MMT SURVEY

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A spectroscopic survey for blue horizontal branch stars and blue stragglers was carried out at the MMT observatory (Brown et al. 2010a). This survey led to the discovery of enigmatic objects such as hyper-velocity stars and extremely low mass (ELM) white dwarfs, which triggered the launch of daughter surveys dedicated to search for such objects (Brown et al. 2006, 2010b). Kilic et al. (2007) revisited 42 ELM WD candidates and found 40 of them to be normal DA white dwarfs, probably because SDSS photometry was inaccurate. We investigate the spectra of the full sample of ≈ 1800 MMT candidates and found 401 objects to be normal DA white dwarfs with surface gravities $\log(g) > 7.0$. A cross-match of our WD sample with other WD catalogues showed that a large number has not been studied before, some not even been identified as candidates. This work, hence, provides accurate atmospheric parameters for 339 candidates from the catalog of Gentile Fusillo et al. (2021) as well as of previously unknown WDs.

The sample is well defined in colour-magnitude space. This was sufficient motivation for us to carry out quantitative spectral analyses to determine atmospheric parameters. Fundamental stellar parameters (mass, radius and luminosities) of the WDs were also derived by making use of spectral energy distributions and evolutionary models.

References:

Brown et al. 2006, ApJ, 647, 303

Brown et al. 2010a, AJ, 139...59B

Brown et al. 2010b, ApJ, 723, 1072

Kilic et al. 2007, ApJ, 660, 1451