FOUR NEW ECLIPSING CATACLYSMIC VARIABLES FROM THE SDSS

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The Sloan Digital Sky Survey (SDSS) has identified 252 cataclysmic variables (CVs), the deepest and most plentiful homogeneous sample of CVs to date (Szkody et al. 2009). We are undertaking a project to characterise this population (Gänsicke et al., 2006; Southworth et al., 2006, 2007ab, 2008ab; Dillon et al., 2008; Littlefair et al. 2006, 2007, 2008). The orbital period distribution of the SDSS sample is *very* different to the previously known population of CVs (see Gänsicke et al. 2009). Here we present light curves of four of the SDSS CVs, obtained as part of our project, which we have discovered to be eclipsing systems with orbital periods of 267.7, 134.2, 131.3 and 97.5 minutes.

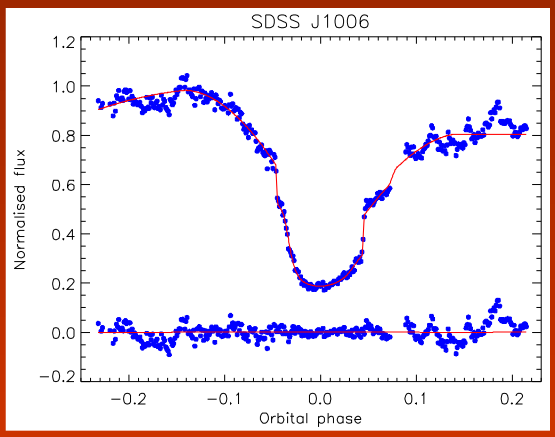

Fig. 1. We found SDSS J100658.40+233724.4 to be eclipsing whilst observing it spectroscopically. We then obtained a light curve in service mode using the Nordic Optical Telescope and modelled it using the LCURVE code (written by T. R. Marsh). The light curve results were combined with the velocity amplitude of the secondary star measured from our spectra. We find that the mass of the white dwarf is 0.73 ± 0.09 $M_{\odot}$, and that the mass and radius of the secondary star are 0.36 ± 0.06 $M_{\odot}$ and 0.45 ± 0.02 $R_{\odot}$ (Southworth et al. 2009).

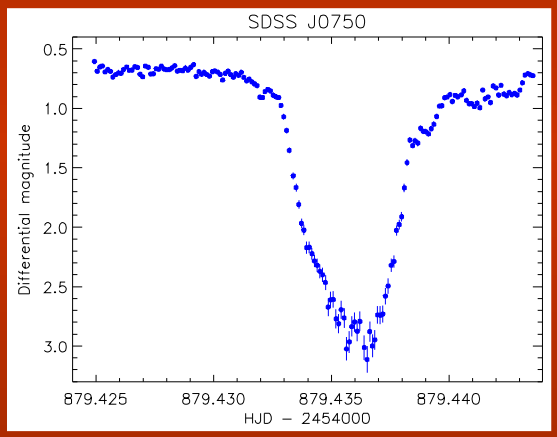

Fig. 2. We obtained a light curve of SDSS J075059.97+141150.1 using the New Technology Telescope (NTT) at ESO La Silla, which showed eclipses 2 mag deep. Follow-up high-speed photometry using the William Herschel Telescope (WHT) at La Palma was obtained to refine the orbital period, which we find to be 134.2 min.

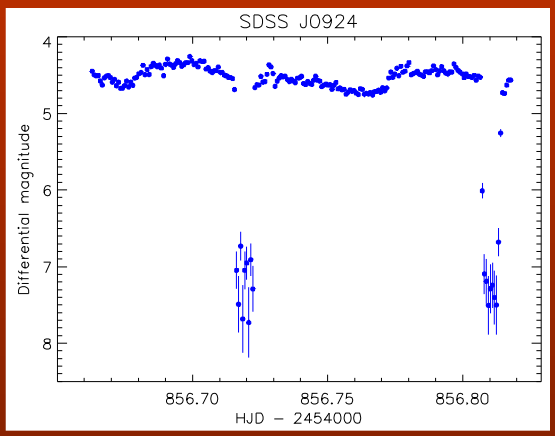

Fig. 3. SDSS J092444.48+080150.9 was identified as a CV by Szkody et al. (2005), who also presented 3.5 hours of photometry which showed brightness variations of about 0.5 mag. We obtained a light curve at the NTT which shows deep eclipses; it is not clear why these were not detected by Szkody et al. We have obtained follow-up high-speed photometry with the WHT and find an orbital period of 131.3 min.

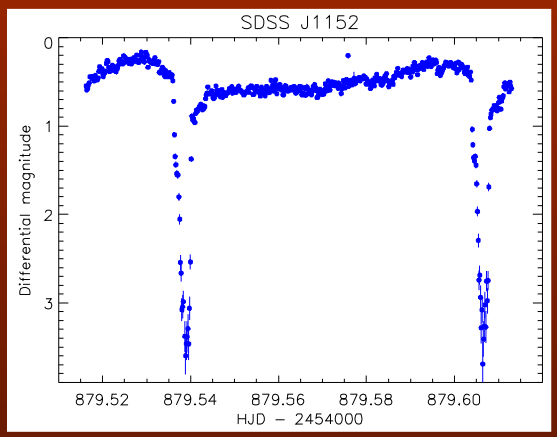

Fig. 4. We obtained two hours of high-speed photometry of SDSS J115207.00 +404947.8 with the WHT. These data show two eclipses of depth 3 mag and duration 6 min, plus also orbital humps from the bright spot. We find an orbital period of 97.5 min.

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