

The WD environment and peculiar brightness changes during the nova outburst

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General connection between white dwarf and light curve of outbursting novae

- ▶ optically thick wind model (Kato & Hachisu, 1994)
- ▶ accelerate wind mass loss depends on metallicity
- ▶ accelerations occurs deep inside the photosphere (Friedjung, 1966)

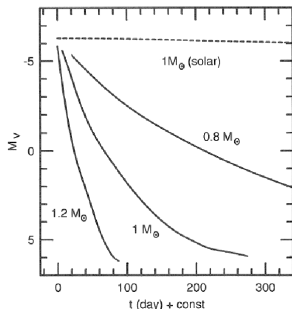
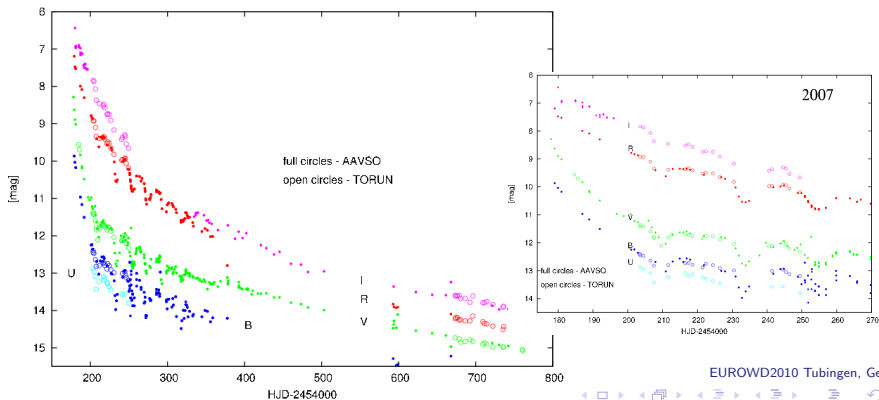


Figure: Kato & Iben (1992)

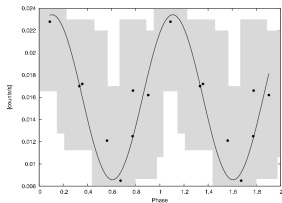
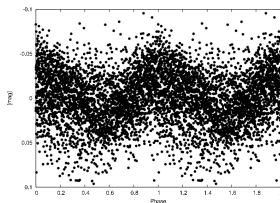
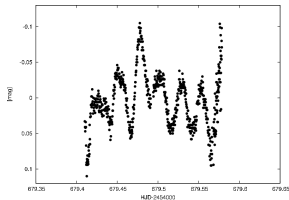
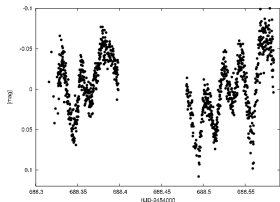
V2467 Cyg (NCyg 2007)

- ▶ discovered in March 2007 by Asihiko Tago (Nakano et al, 2007)
- ▶ progenitor identified as early A type star (Steggs et al, 2007)
- ▶ extremely strong OI 8446 Å (Tomov et al, 2007)
- ▶ oscillations during the transition phase (Kato, 2007)



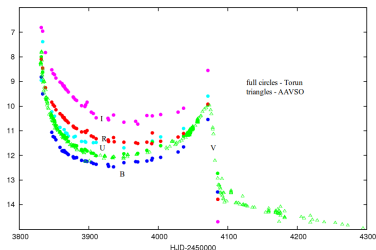
Magnetic features of V2467 Cyg

one-night variations monitorings with VR filters in 2007 and without any filters in 2008 (Swierczynski et al, 2009)



- ▶ period 3h40min connected with orbital period found in periodogram
- ▶ rapid changes with period about 40 min and amplitude about 0.1 mag
- ▶ X-ray observations obtained with Swift XRT in range 0.3-10keV
- ▶ belongs to class of rare object called intermediate polars (?)

V2362 Cyg (NCyg 2006) & V2491 Cyg (NCyg 2008 No.2) - novae with rebrightening episodes

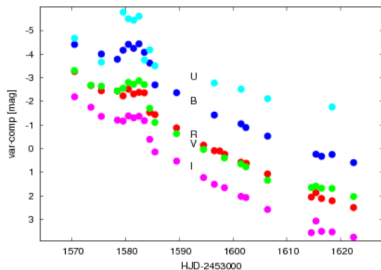


▶ V2491 Cyg

- ▶ detected by Kabashima and Nishiyama in April, 2008
- ▶ very broad $H\alpha$ emissions with FWHM of 4000 km s^{-1} in early spectra, recurrent nova? (Tomov et al, 2009)

▶ V2362 Cyg

- ▶ discovered by Nishimura in April, 2006
- ▶ unusual brightening between 130 and 250 day after the maximum (Henden et al, 2006)



Possible explanations for V2362 Cyg behaviour

- ▶ magnetic reconnection in polar system (Hachisu & Kato, 2009)
 - ▶ magnetic activities strongest when pseudo-photosphere shrinks to near the orbit
 - ▶ nova light curve return to normal decline phase described by Hachisu & Kato (1994)
- ▶ second outburst and collision two envelopes causes energetic shocks (Akari et al, 2010)
 - ▶ X-ray activity but no periodicity connected with rotation of white dwarf
 - ▶ dust formation as indicator of strong mass loss.

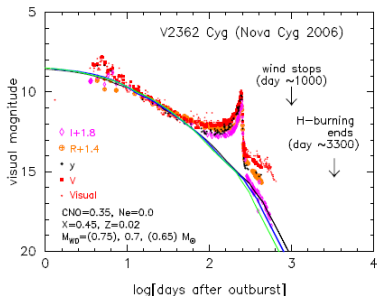
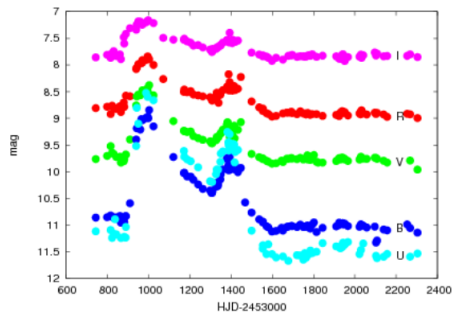


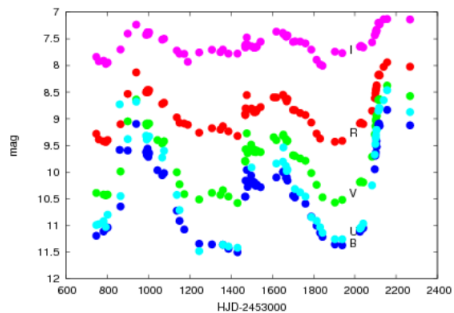
Figure: Hachisu & Kato (2009)

Classical novae and symbiotic stars

▶ AG Dra



▶ Z And



Thank you for your attention!