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Accretion processes in cataclysmic variables: Insights from optical transient surveys

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Abstract content
   (Max 300 words)
Formatting &
Special chars

Cataclysmic variables (CVs) are mass transferring binary stars consisting of a low mass main sequence (MS) donor star and an accreting white dwarf star. AM CVn stars are a subclass of cataclysmic variables which have helium-rich donors (a white dwarf, a helium star or an evolved MS star). Their most defining features are their ultra-short orbital periods and helium-dominated spectra. The presence of a strong magnetic field would affect the trajectory of the mass flow, causing it to follow a stream along the magnetic field lines on to the magnetic poles of the white dwarf. An intermediate polar would truncate the accretion disc on the inside whereas a polar prevent an accretion disc from forming at all. The Catalina Real-time Survey (CRTS) is a synoptic transient survey which detects transients that vary in brightness over 2 mags over a large area of sky. In the past 15 years, wide area surveys such as the CRTS have greatly increased the number of known CVs (> 1000). The nine year observing baseline of the CRTS makes it suitable for identifying magnetic CVs from their low-to-high state transistions, or vice versa. I observed sources from the CRTS at the South African Astronomical Observatory in Sutherland. I've discovered 3 new AM CVns (˜10% of the known AM CVns) and I'm currently exploring ways to identify and characertise magnetic CVs from the CRTS.

Apply to be
 considered for a student
   award (Yes / No)?

yes

Level for award
 (Hons, MSc,
   PhD)?

PhD

Main supervisor (name and email)
and his / her institution

Dr David Buckley (SALT), A/Prof Patrick Woudt (UCT), Prof Brian Warner (UCT), Dr Stephen Potter (SAAO)

Would you like to
 submit a short paper
 for the Conference
 Proceedings (Yes / No)?

yes

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