

4th European Variable stars meeting (EVS2019)

Public observatory MIRA, Grimbergen, Belgium, Sept. 14-15, 2019

International collaboration : United Kingdom, Ireland, France

Observing campaign : Launch in January 2019 of an observation campaign. Coordination Heydi Thiemann PhD, under the supervision of Professor Andrew Norton

Proposed work : Observation of a set of 17 unusual eclipsing binary stars (EW type), red giants in very close contact that can merge to give a luminous red nova visible for weeks to months.

Objectif : Very little is known about this type of merger. In 2008, the merger of V1309 Scorpii, a contact binary that merged to become a single star, was identified, but only after the merger happened...We need to better understand the life cycle of such systems to predict their potentially cataclysmic end.

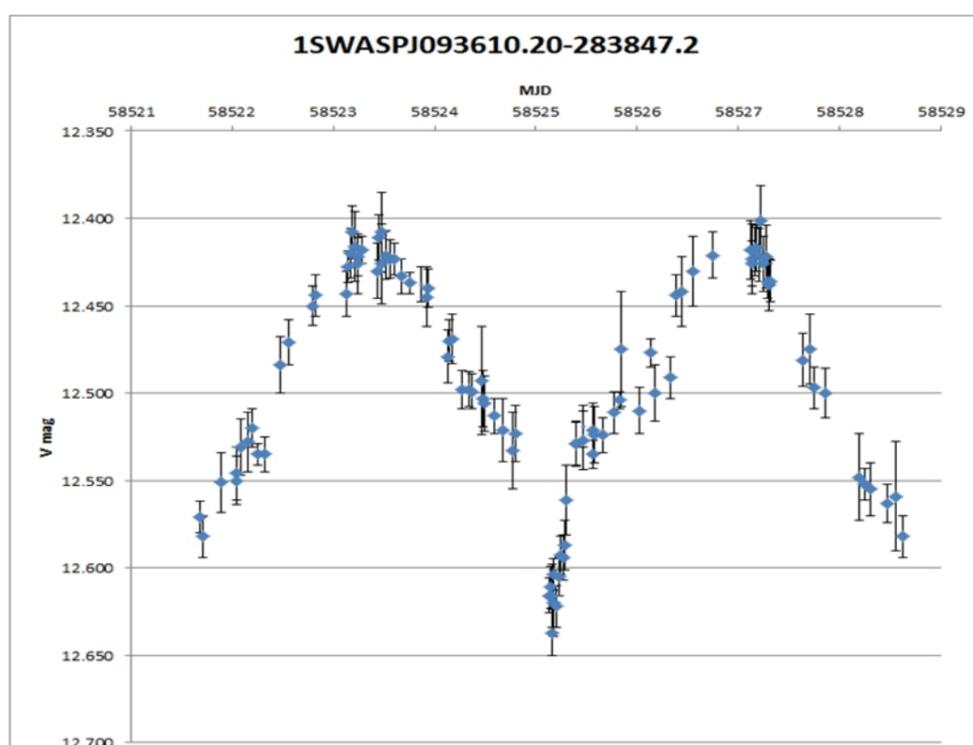
In order to understand the evolution of a star, it's vital that we know a star's mass and radius, but unfortunately this can be difficult to measure. In an eclipsing binary star system, we can measure these properties directly. By building up a well-sampled light curve, when combined with other properties such as radial velocity (the rate of change of distance between a star and an observer), we can determine the stars' masses and radii.

Targets : 17 targets bright enough to be observed with the LCO telescopes have been identified in the SuperWASP and ASAS-SN archives...and you never know, one of the 17 objects might merge and explode in our lifetime !

Team of observers : John Murphy, Cork, IR, Conrad Stevens, Canterbury, UK and André Debackère, Monistrol sur Loire, FR and their students share the observation telescope times of the LCO robotic telescope network.

First results : this target was observed from January to April 2019

(P = 6.92 days), following below composite light curve of all our observations.



Next steps :

- High resolution spectroscopy with the T1m LCO telescope network of this target.
- Observation of other targets of the other targets on the list based on their visibility

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April