

## Physical parameters of the low-mass eclipsing binary NSVS 10653195.

Iglesias-Marzoa, R.<sup>1,2</sup>, Arévalo, M. J.<sup>1,3</sup>, López-Morales, M.<sup>4</sup>, Torres, G.<sup>4</sup>, Lázaro, C.<sup>1,3</sup>, and Coughlin, J.<sup>5</sup>

<sup>1</sup> Dpto de Astrofísica, Universidad de La Laguna, Tenerife

<sup>2</sup> Centro de Estudios de Física del Cosmos de Aragón (CEFCA), Teruel

<sup>3</sup> Instituto de Astrofísica de Canarias, La Laguna, Tenerife

<sup>4</sup> Harvard-Smithsonian Center for Astrophysics, Cambridge, MA, USA

<sup>5</sup> SETI Institute, Mountain View, CA, USA

### Abstract

NSVS 10653195 is a double-line detached eclipsing binary star found in 2007 by [1] among the NSVS periodic variable stars. The first analysis of the optical VRI light curves by [1] show that this binary could be composed by two low mass stars. Other authors ([2, 3]) analyzed new optical light curves for this system, obtaining some parameters, like the mass ratio ( $q$ ) from the light curves, given the absence of radial velocity (RV) measurements. This procedure is unreliable in the case of detached eclipsing binaries, leading to large uncertainties in the physical parameters of the system.

We obtained new IR light curves and radial velocity measurements to characterize the physical properties of this system, in particular masses and radii. In addition, calibrated optical BVRI photometry was obtained to fully constrain the effective temperature of the two components of this system. The modelling of this system with the `rvfit` and `Phoebe` package show that the mass ratio  $q$  is very different of previously published values, showing that the secondary component, as defined by the light curve, is slightly more massive than the primary. We are currently finishing the modelling of this interesting eclipsing system. (See poster).

### References

- [1] Coughlin, J., & Shaw, J. S. 2007, JSARA, 1, 7
- [2] Wolf, M., et al. 2010, ASP Conference Series, 435, 441
- [3] Zhang, L.-Y., et al. 2014, MNRAS, 442, 2620