THE ACCRETION VARIABILITY IN THE YOUNG MULTIPLE SYSTEM WX CHA

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One of the main contributor to the photometric variability of pre-main sequence stars is the mass accretion rate, which regulates the interplay between the forming star and the protoplanetary disk. In multiple systems, the accretion scenario is furthermore complicated by the interaction of the components, and by the eventual presence of a circumbinary disk. The multiple system WX Cha, composed of three young stellar objects, is one of the best candidates to investigate the accretion rates to study how the photometric variability is related to the accretion process in multiple systems.

We collected high resolution spectroscopy (ESO2.2/FEROS + VLT/ESPRESSO) in 7 different epochs, as well as ground-based and spaceborne (TESS) multi-epoch VIS/IR photometry of the young multiple system WXCha. The multi-wavelength light curves exhibit quasi-periodic variability of ≤ 0.5 mag. **Analysing the TESS light curve, we found a significant period of 9.6 days, which we assign to one of the orbital periods in the system (Fig. 1)**. We studied the variability of selected emission lines (Fig. 2) that trace the accretion, to compute the accretion luminosity with empirical relations (Alcalà+2017). We computed accretion luminosity and mass accretion rate for each epoch (Fig. 3) by measuring our flux calibrated spectra, taking stellar parameters from the literature (Daemgen+13).

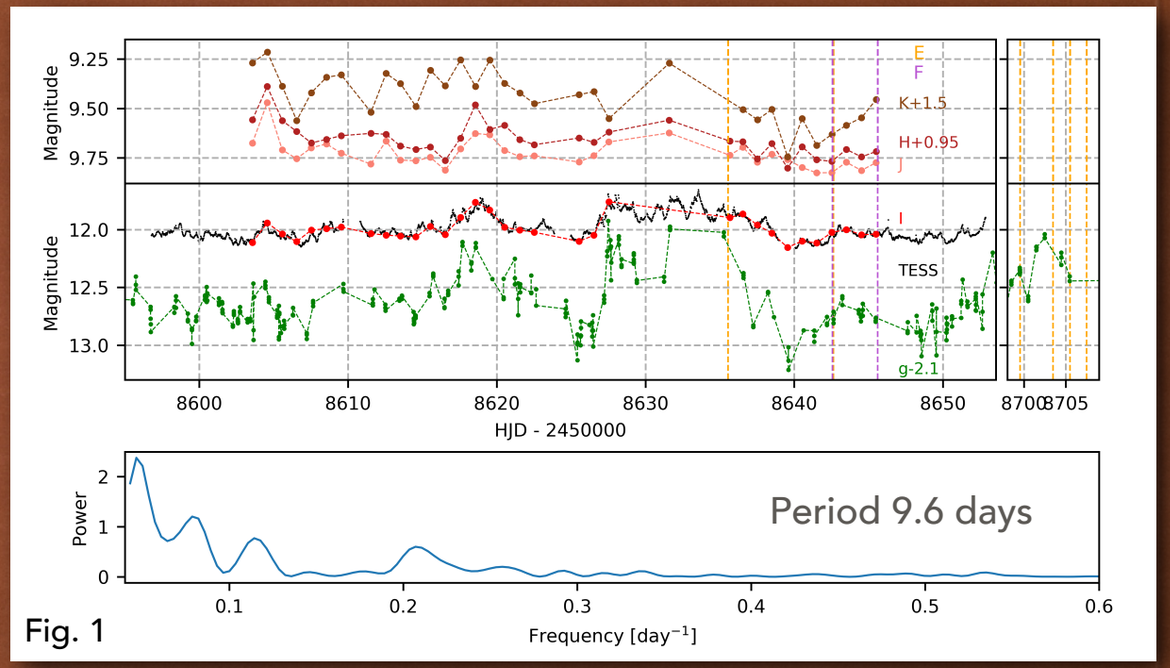

Fig. 1

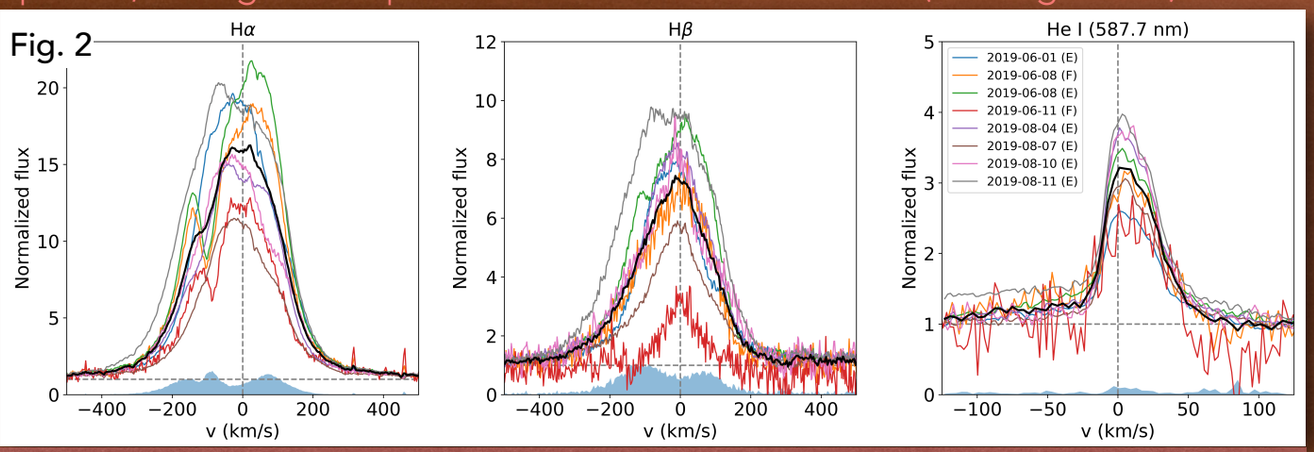

Fig. 2

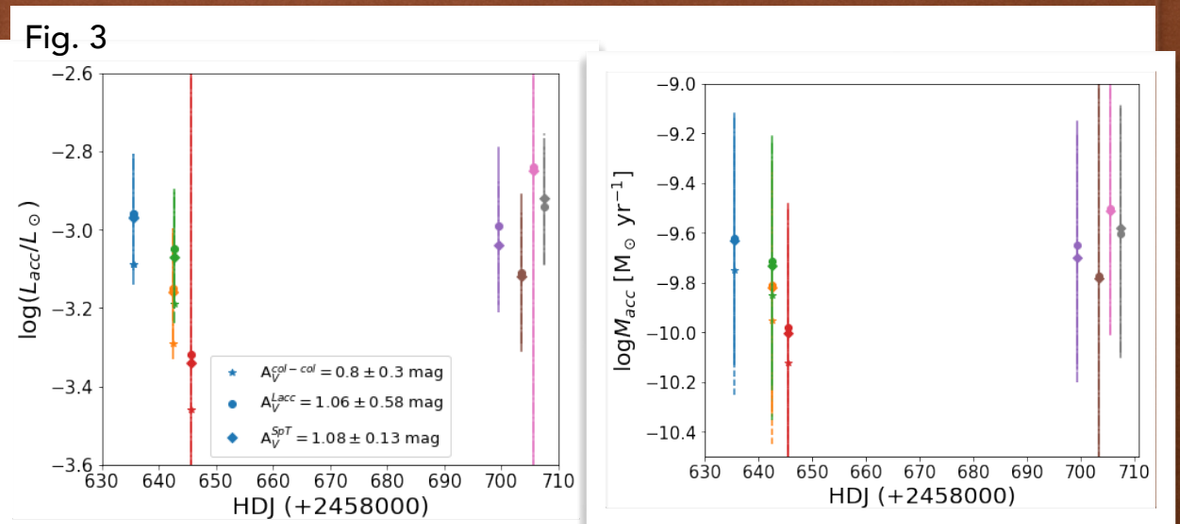

Fig. 3

Our preliminary data show that WX Cha is accreting as a rate typical of TTauri stars system. Daily changes in the accretion luminosity can explain the photometric variability, and the extinction can be considered constant. The relative contributions of the three stellar components to the accretion will be the topic of further studies.