

Planetary nebula LoTr5: hints of a possible third companion in a long-period binary central star.

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Abstract

LoTr 5 is a planetary nebula with an unusual long-period binary central star. The pair consists of a rapidly rotating G-type star and a hot star, which is responsible for the ionization of the nebula. Both components are in a wide orbit with a period of about 2700 days, one of the longest in central star of planetary nebulae. In this contribution, we present new radial velocity observations of the central star. These data provide evidence of a third component in the system at 129 days to the G star. This periodicity is also present in the photometry of this target from the superWASP survey, providing an additional hint for its presence. We also present a detailed analysis of the complex H α double-peaked profile, which varies with very short time scales, and whose origin is still unknown. We conclude that it does not present correlation with the rotation period (~ 5.95 days and detectable in all photometric time series from superWASP, OMC and ASAS) and that the presence of an accretion disk via Roche lobe overflow is unlikely. A.A. acknowledges support from FONDECYT through postdoctoral grant 3160364. Based on observations obtained with the HERMES, CAFOS and ELODIE spectrographs, and from OMC, SuperWASP and ASAS data. (See poster).