

## Analysis of fundamental parameters for V477 Lyr

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### Abstract

We analyze the photometric and spectroscopic observations of the young pre-cataclysmic variable (pre-CV) V477 Lyr. The masses of both binary components have been corrected by analyzing their radial velocity curves. We show that agreement between the theoretical and observed light curves of the object is possible for several sets of its physical parameters corresponding to the chosen temperature of the primary component. The final parameters of V477 Lyr have been established by comparing observational data with evolutionary tracks for planetary nebula nuclei. The derived effective temperature of the O subdwarf is higher than that estimated by analyzing the object's ultraviolet spectra by more than 10000 K. This is in agreement with the analogous results obtained previously for the young pre-CVs V664 Cas and UU Sge. The secondary component of V477 Lyr has been proven to have a more than 25-fold luminosity excess compared to main-sequence stars of similar mass. Comparison of the physical parameters for the cool stars in young pre-CVs indicates that their luminosities do not correlate with the masses of the objects. The observed luminosity excesses in such stars show a close correlation with the post-common-envelope lifetime of the systems and should be investigated within the framework of the theory of their relaxation to the state of main-sequence stars. © 2008 Pleiades Publishing, Ltd.

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### Keywords

Binary stars, Pre-cataclysmic variables, Stars-variable and peculiar, V477 Lyr