

Abstract for general public

The many types of stars that are classified as variables. Those stars change their brightness in a time-scale that is short from the astronomical point of view. One of the types of such stars are pulsating red giants, also known as long period variables. These objects show periodic, regular or semi-regular variation of brightness caused by the pulsation of the star. However, some of these objects also show an additional, longer variability cycle, known as the long secondary period. Its origin still remains unknown, and cannot be explained by classical model of pulsations. The aim of this project is to investigate the different hypothesis on the mechanism behind the long secondary periods, using the data from the large sky surveys both ground and space-based.