

The variation of the optical SED of RR Lyrae stars with the multi-filter J-VAR survey.

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Abstract

Time domain surveys, whether in the form of wide-field photometric (like LSST) or spectroscopic (SDSS-V) surveys, will expand our knowledge in many aspects of stellar Astrophysics in the next decade. J-VAR constitutes a trade-off between such approximations, having a photometric-based approach but with some (low) spectral resolution around key stellar features thanks to its medium- and narrow-band filters (J0395, J0515, J0660, J0861).

RR Lyrae stars, intimately tracers of old (>10 Gyr) stellar populations, are classical pulsators with periods between around 0.2 to 1.2 d. They pulsate mainly in two modes: the fundamental (RRab/RR0) and the first-overtone (RRc/RR1) modes. Although they are present in all the MW components, their number stands out in the halo. They are very fair distance indicators (following a well-known and tight luminosity-period-metallicity relation). In this contribution, we explore the capabilities of J-VAR data to analyze how the Spectral Energy Distributions (SEDs) of RR Lyrae stars vary with the phase and what can we learn from it about the physics of these classical pulsators.