

Exploring low and intermediate-mass binaries in the young cluster Westerlund 2 using HST

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We present preliminary results of an HST photometric and astrometric campaign aimed at probing the unexplored population of low and intermediate-mass binaries ($P = \sim 2$ days - ~ 200 years) in the young, massive cluster Westerlund 2 (Wd2). Over the next 3 years, we have a total of 45 orbits using the HST WFC3 instrument. We will be able to measure, for the first time, the separation, flux ratio and the angle of barely resolved short, intermediate and long period binaries in Wd2. We will discuss the properties of binary systems immersed in an environment that resembles the conditions of stellar density and UV radiation found during the early evolution of starburst galaxies and globular clusters and how the main orbital properties of the binary population in Wd2 can be used to constrain models of star and cluster formation and evolution. Our Point Spread Function (PSF) subtraction technique is presented to look for elongation and to compare to the variability uncovered through photometry.

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