

New spectroscopic binaries with Gaia and the Gaia-ESO survey

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The Gaia-ESO Survey (GES) is a large public spectroscopic survey which acquired spectra for more than 100000 stars across all major components of the Milky Way. Using the 161000 GIRAFFE spectra obtained by GES and corresponding to more than 37000 Milky Way field star objects, we compute cross-correlations functions (CCF) to hunt for spectroscopic binaries (SB) with one, two or more stellar components visible in their spectra. We design cross-correlating templates (named Nacre) to improve the SB detection efficiency at medium-resolution, and in particular, in the near-infrared Calcium II triplet region. Thanks to this optimisation, the CCFs are narrower and allow to unblend more stellar components than standard masks. We then analyse the Nacre CCFs with the extremum-finding tool Doe to measure the radial velocities of each detected stellar component. We will show how the Nacre CCFs have improved the number of detected SB2 by a factor 1.5 compared to our previous analysis. With the help of the Nacre CCFs, we identify 322 SB2, 10 SB3 et 2 SB4 in the examined sample. We will discuss the locus of the SB2, SB3 and SB4 in the Gaia colour-magnitude diagramme, provide an estimate of the SB2 frequency and characterise the mass-ratio distribution of the uncovered SB2.