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NEAR-IR TRIGONOMETRIC PARALLAXES OF NEARBY STARS IN THE GALACTIC PLANE USING THE VVV SURVEY.

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We use the multi-epoch K_S band observations, covering a ∼5 years baseline to obtain milli and sub-milli arcsec precision astrometry for a sample of eighteen previously known high proper motion sources, including precise parallaxes for these sources for the first time. In this pioneer study we show the capability of the VVV project to measure high precision trigonometric parallaxes for very low mass stars (VLMS) up to distances of ∼400 pc reaching farther than most other ground based surveys or space missions for these types of stars. Two stars in our sample are low mass companions to sources in the TGAS catalog, the VVV astrometry of the fainter source is consistent within 1-σ with the astrometry for the primary source in TGAS catalog, confirming the excellent astrometric quality of the VVV data even nearby of saturated sources, as in these cases. Additionally, we used spectral energy distribution to search for evidence of unresolved binary systems and cool subdwarfs. We detected five systems that are most likely VLMS belonging to the Galactic halo based on their tangential velocities, and four objects within 60 pc that are likely members of the thick disk. A more comprehensive study of high proper motion sources and parallaxes of VLMS and brown dwarfs with the VVV is ongoing , including thousands of newly discovered objects (Kurtev et al. 2016).

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WHITING 1: CONFIRMATION OF ITS ACCRETION BY THE MILKY WAY

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Globular clusters have played an important role in the study of the processes that led to the formation of our Galaxy. Moreover, the dual Galactic globular cluster system is considered a manifestation of its hierarchical formation in the context of the Lambda-CDM scenario. Wide-field imaging and spectroscopy, as the ones obtained for our project, are crucial tools to unveil the remnants of their progenitor dwarf galaxies, already assimilated by the Milky Way. In this poster, we present our results for Whiting1, where VLT/VIMOS MOS spectroscopy reveals the presence of a component of the Sagittarius tidal stream with a radial velocity – and distance – compatible with that of the globular cluster. Therefore, we conclude that Whiting1 was formed in the interior of the Sagittarius dSph and later accreted by the Milky Way.

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