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J-PLUS: Estimating the Galactic halo density profile using Blue Horizontal Branch stars selected from multifilter data.

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Abstract

To study the Galactic halo we need to rely on intrinsically bright and fair distance indicators. Blue Horizontal Branch (BHB) stars accomplish these requirements but traditionally suffer from high levels of contamination from Blue Stragglers stars in photometric samples. Surveys like Pristine and SkyMapper have demonstrated that colors combining a broad- and a narrow-band filter with central wavelength bluewards 4,000Å allow them to build high completeness and purity samples of BHB stars. In this context, the Javalambre Photometric Local Universe Survey (J-PLUS), with a broad- and two custom narrow-band filters (among its 12) having central wavelengths shorter than 4,000Å, has released more than 2,000 sq. deg in 2020. In this contribution, we review the latest attempts to study the density profile of the halo, discuss our work in which we used three methods to select BHB stars from J-PLUS DR2, present our estimation of the halo profile, and forecast the expectations for J-PAS and its 56 narrow-band filter system.

My poster is available at https://zenodo.org/record/7025724#.Y2jJ1C1Dl-U