

Stellar streams around the Magellanic Clouds in 4D

Navarrete, C., Belokurov, V., Catelan, M., Jethwa, P., Koposov, S. E., Carballo-Bello, J. A., ... & Corral-Santana, J. M. (2019). Stellar streams around the Magellanic Clouds in 4D. *Monthly Notices of the Royal Astronomical Society*, 483(3), 4160-4174. <10.1093-mnras-sty3347> Accessed 13 Jun 2021.

Abstract

We carried out a spectroscopic follow-up programme of the four new stellar stream candidates detected by Belokurov & Koposov in the outskirts of the Large Magellanic Cloud (LMC) using FORS2 (VLT). The medium-resolution spectra were used to measure the line-of-sight velocities, estimate stellar metallicities, and classify stars into Blue Horizontal Branch (BHB) and Blue Straggler (BS) stars. Using the 4-D phase-space information, we attribute approximately one half of our sample to the Magellanic Clouds, while the rest is part of the Galactic foreground. Only two of the four stream candidates are confirmed kinematically. While it is impossible to estimate the exact levels of MW contamination, the phase-space distribution of the entire sample of our Magellanic stars matches the expected velocity gradient for the LMC halo and extends as far as 33 deg (angular separation) or 29 kpc from the LMC centre. Our detections reinforce the idea that the halo of the LMC seems to be larger than previously expected, and its debris can be spread in the sky out to very large separations from the LMC centre. Finally, we provide some kinematic evidence that many of the stars analysed here have likely come from the Small Magellanic Cloud..

Keywords

Stars horizontal branch, Galaxy halo, Galaxy structure, Magellanic Clouds.