

# The Velocity Distribution in the Solar Neighborhood from LAMOST Pilot Survey

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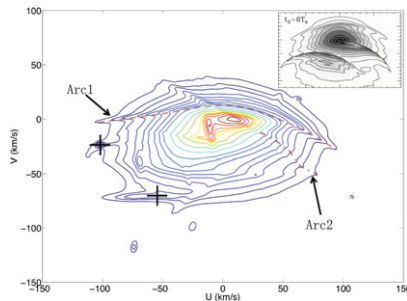
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**Abstract.** We use 63,774 F/G dwarf stars from the LAMOST pilot survey to explore the velocity distribution in the solar neighborhood. The intrinsic UV distribution is reconstructed with a 20-Gaussian model using extreme deconvolution. We find at least two arcs, one extending from  $(-106, -3)$  to  $(94, -27)$  km/s and the other from  $(29, -9)$  to  $(78, -51)$  km/s. The arcs are qualitatively consistent with numerical simulations of the resonance induced by the Galactic bar and can be used to constrain its dynamical properties.

**Keywords.** Solar Neighbourhood, Stars, Velocities



**Figure 1.** The central figure is the fitting of U vs. V velocity plane. The red dash (Arc1) and dotted-dash (Arc2) lines show the ridges of the two arcs. The crosses indicate the central position of the two new overdensities. The top-right panel shows one of the simulated result by Dehnen (2000).

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