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ERRATUM: "HYPERVELOCITY STAR CANDIDATES IN THE SEGUE G & K DWARF SAMPLE" (2014, ApJ, 780, 7)

Lauren E. Palladino[1], Katharine J. Schlesinger[2], Kelly Holley-Bockelmann[1,3], Carlos Allende Prieto[4,5], Timothy C. Beers[6], Young Sun Lee[7], and Donald P. Schneider[8,9]
[1] Department of Physics and Astronomy, Vanderbilt University, Nashville, TN 37235, USA; lauren.e.palladino.1@vanderbilt.edu, k.holley@vanderbilt.edu
[2] Research School of Astronomy and Astrophysics, The Australian National University, Weston, ACT 2611, Australia
[3] Department of Natural Sciences and Mathematics, Fisk University, Nashville, TN 37208, USA
[4] Instituto de Astrofísica de Canarias, E-38205 La Laguna, Tenerife, Spain
[5] Departamento de Astrofísica, Universidad de La Laguna, E-38206 La Laguna, Tenerife, Spain
[6] National Optical Astronomy Observatory, Tucson, AZ 85719, USA
[7] Department of Astronomy, New Mexico State University, Las Cruces, NM 88003, USA
[8] Department of Astronomy and Astrophysics, The Pennsylvania State University, University Park, PA 16802, USA
[9] Institute for Gravitation and the Cosmos, The Pennsylvania State University, University Park, PA 16802, USA
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Due to an error at the publisher, the published article used figure files from an earlier version of the manuscript. All published text, figure captions, and tables are unaffected and reflect the scientific results and conclusions of the authors. This erratum contains the correct figures (Figures 1–5) for this work.

IOP Publishing sincerely regrets this error.

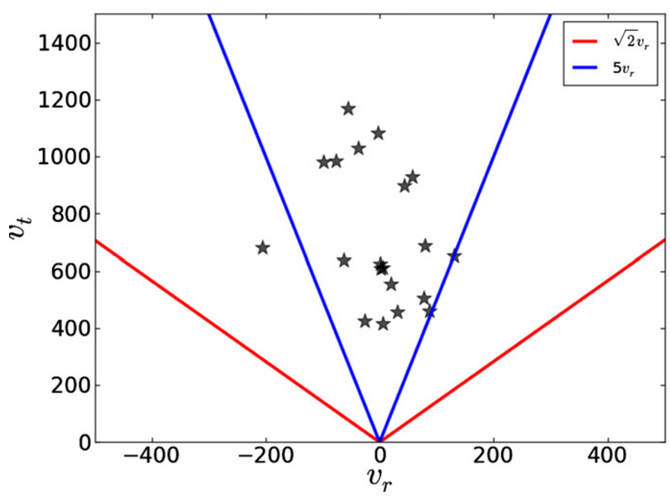

Figure 1. Transverse vs. radial velocities of our HVS candidates, in kilometers per second. Red lines indicate a transverse velocity $\sqrt{2}$ times larger than the radial velocity, as expected for an isotropic stellar distribution. Blue lines represent a transverse velocity five times larger than the radial velocity. The majority of our candidates show large transverse-to-radial velocity ratios, characteristic of a sample strongly affected by large proper-motion errors. We caution that some of our HVS candidates may be high-velocity flukes, and we calculate the likelihood of this in Section 3.2.

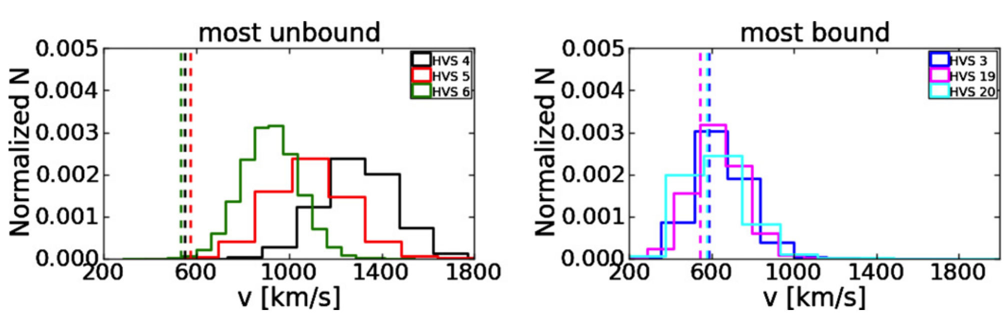

Figure 2. Velocity distribution for a million random samples of the velocity error distribution for the three least and most bound HVS candidates. Dashed lines show the escape velocity of each candidate.

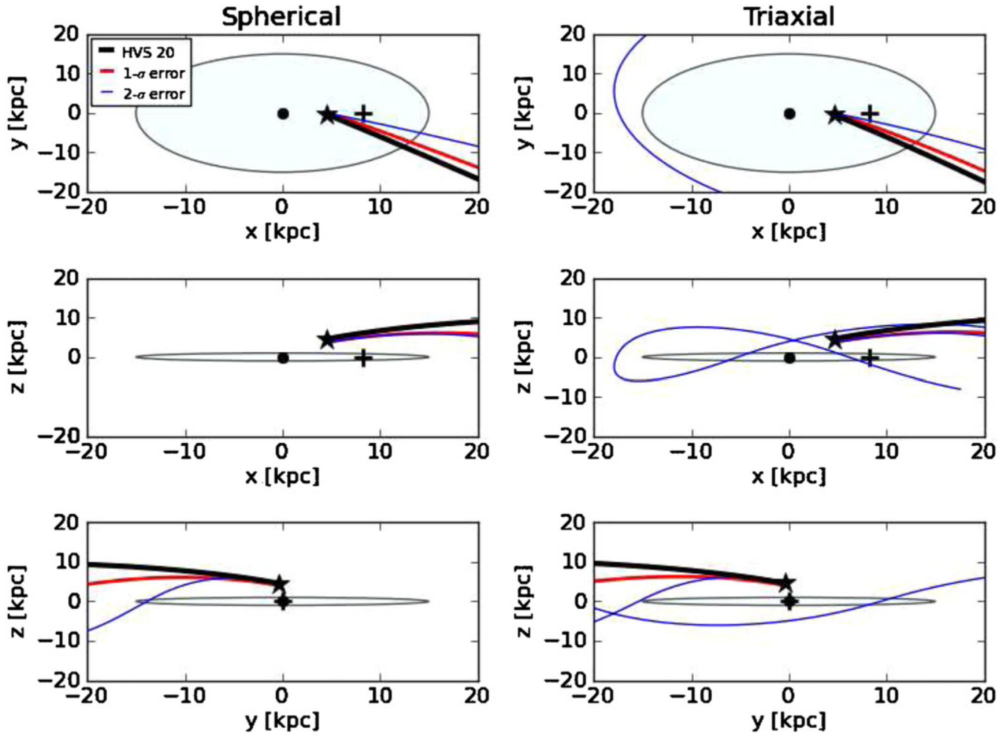

Figure 3. Orbit of HVS 20, a candidate with a "Reliable" proper-motion measurement but the largest probability of being bound, shown by the black lines. Also shown are the resulting orbits for the same candidate with 1σ (red lines) and 2σ (blue lines) velocity errors from the million Monte Carlo realizations. Left, two-dimensional projections in the spherical dark matter halo; right, the same for the triaxial model. The black dots and plus signs represent the locations of the Galactic center and the Sun, respectively, while the pale blue ellipses provide a rough scale for the extent of the disk. The five-pointed star in each panel marks the current position of HVS 20. The top row is a top-down view of the Galaxy, while the middle and bottom rows are side views along the disk. Here we show that some candidates may in fact live on very bound orbits, and in such cases the shape of the orbit is strongly influenced by the triaxiality of the halo.

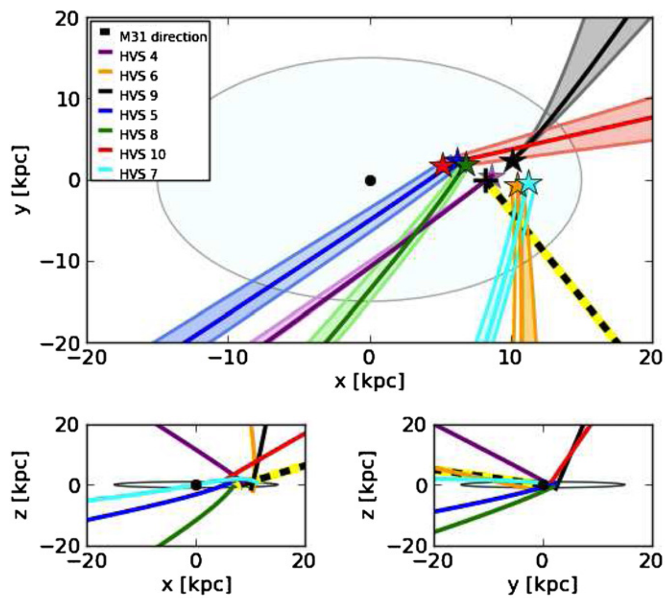

Figure 4. Orbits of the seven HVS candidates that are unbound with at least 98% probability, over the past 1 Gyr. As in Figure 3, the black dots and plus signs in each panel represent the locations of the Galactic center and the Sun, respectively, while the pale blue ellipses provide a rough scale for the extent of the disk. The shaded regions flanking the orbits of the same color represent "wedges" of possible orbits given the 1σ velocity errors for the corresponding candidate. The like-colored stars mark the current positions of the candidates. None of the orbits plotted here intersect near the Galactic center, suggesting a different origin for these stars. In addition, if these stars had been traveling for 13 Gyr, they may have originated from as far as tens of megaparsecs away. The dashed lines, highlighted in yellow for visibility, point toward M31's location 1 Gyr ago, assuming M31 proper motion, radial velocity, and distance from Sohn et al. (2012). This interval was chosen to roughly coincide with the travel time of a hypervelocity star originating in M31. None of these HVS candidates seem to be coming from M31, which therefore is ruled out as a possible origin.

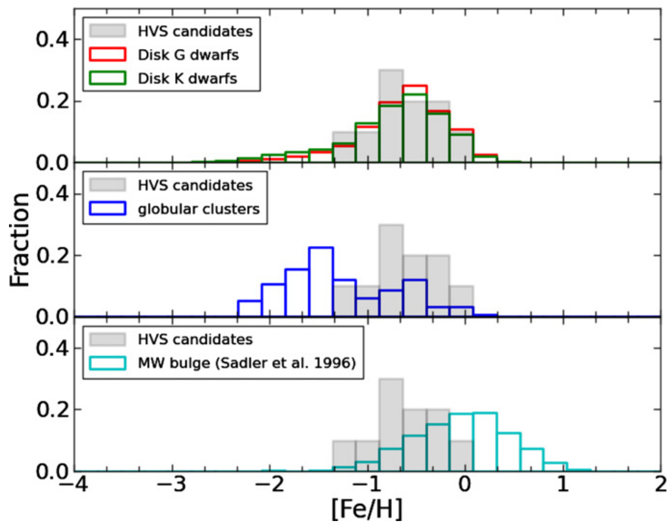

Figure 5. Normalized metallicity distribution functions of our candidates (shaded), compared with G dwarfs (red), K dwarfs (green), globular clusters (blue) and the Galactic bulge (cyan).

REFERENCE

Sohn, S. T., Anderson, J., & van der Marel, R. P. 2012, ApJ, 753, 7