Impact of the accretion of Sagittarius dwarf on the distribution of Milky Way's globular clusters

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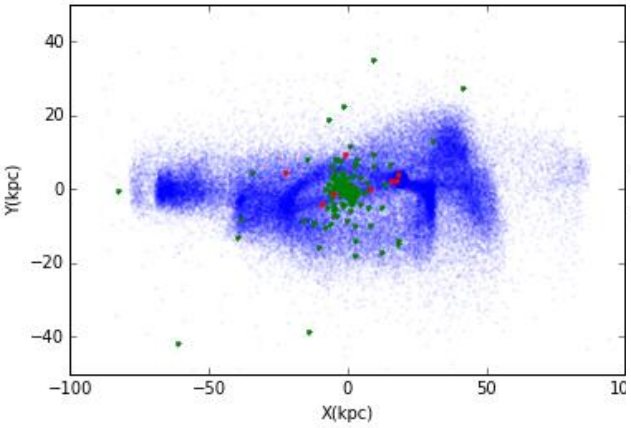
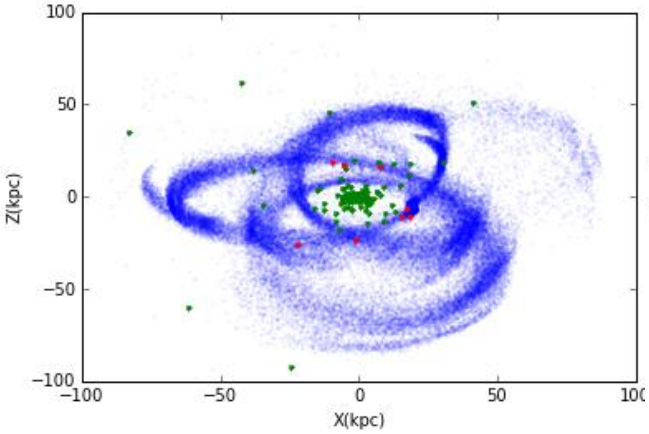
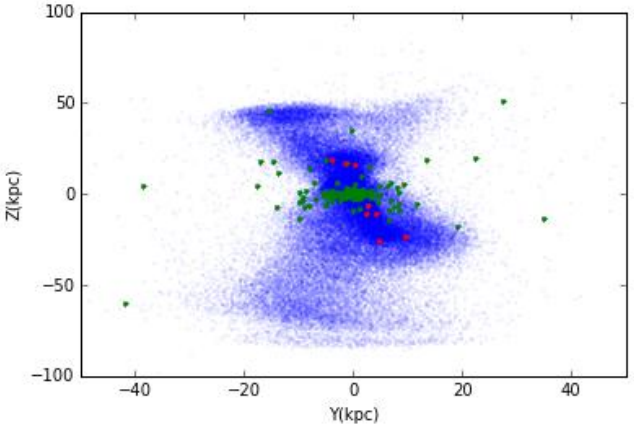
Distribution of the model (blue dots) of the tidal stream of Sagittarius and GCs (green and red dots) in the Galaxy

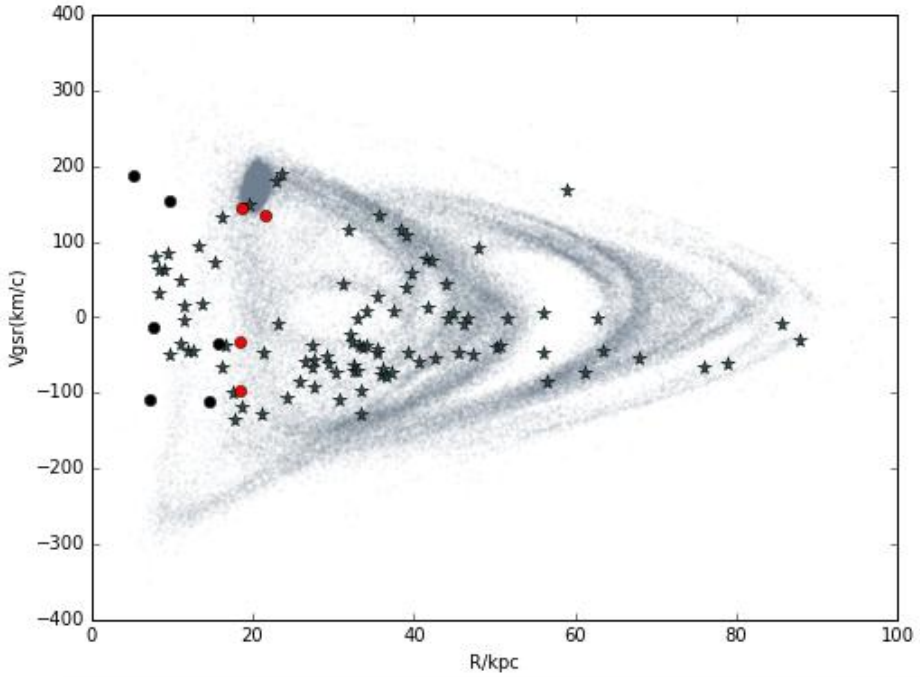


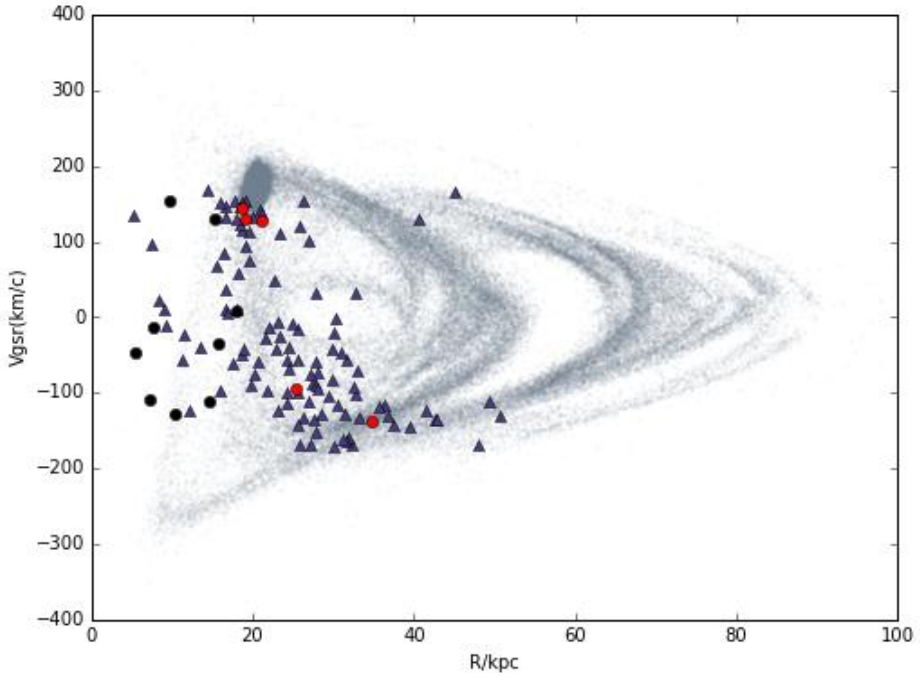




XYZ – Cartesian coordinates relative to the centre of the Galaxy. The red dots show 8 GCs belonging to the stream and the green dots show the remaining 149 GCs of our Galaxy.

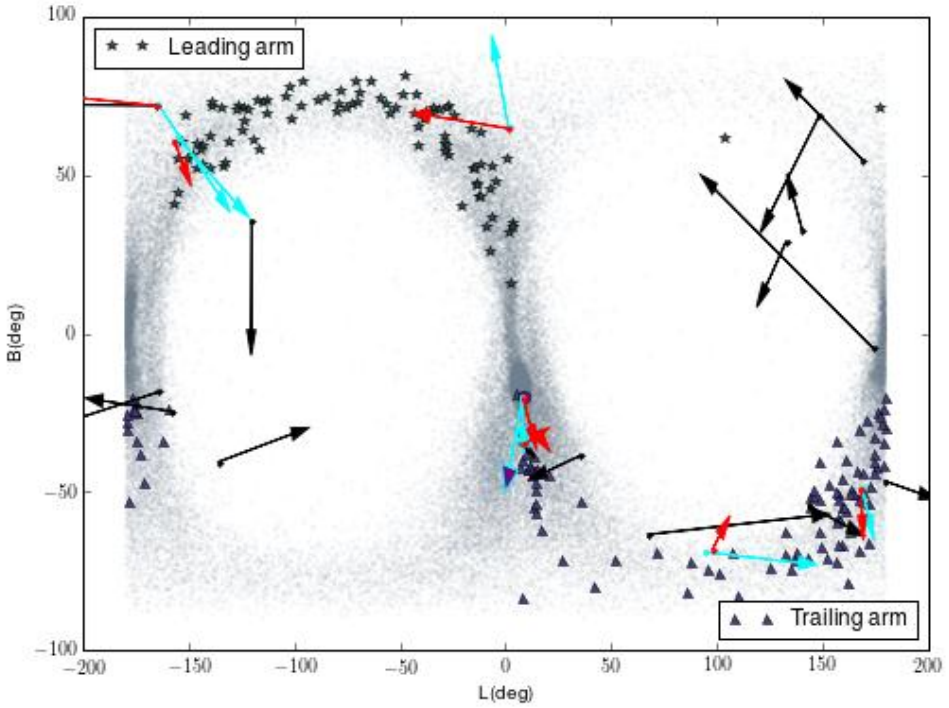
KINEMATICS OF GCS
Radial velocities vs. Galactocentric distance.



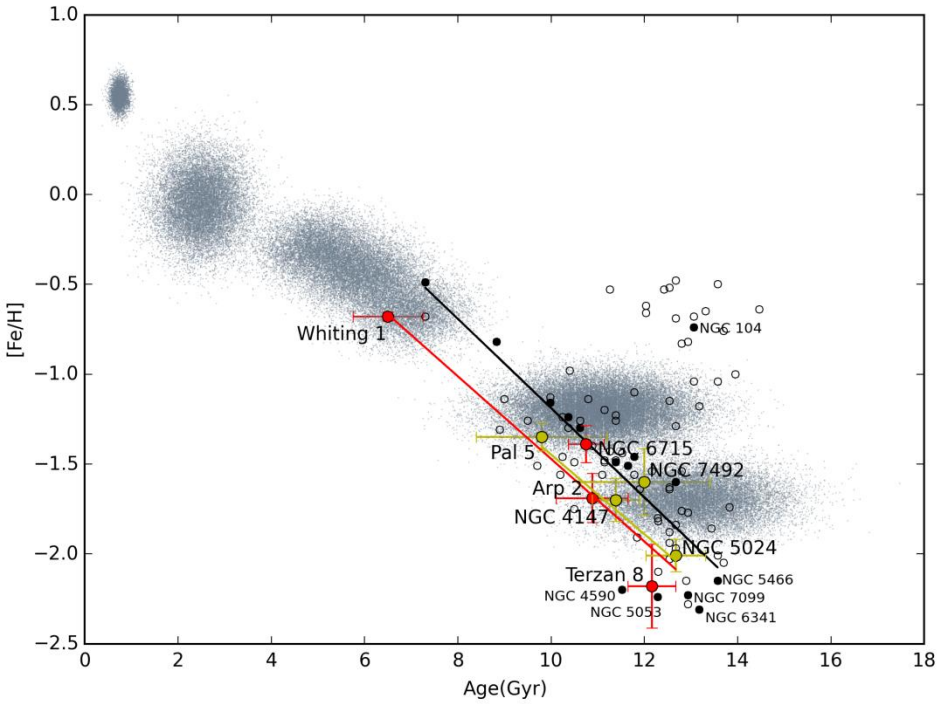


Distribution of GCs, stars (real data) and model LM10a. Gray dots show the Sgr tidal stream model. Stars and triangles represent stars from the leading arm (left-hand pane) and trailing arm (right-hand pane), respectively. Red dots show GCs belonging to the stream (3 GCs in the leading arm and 4 GCs in trailing arm, 1 more GC, which is shown in both gures (NGC 6715) and which is directly next to the Sgr dSph). The black dots are the GCs candidates (6 GCs in the leading arm and 9 GCs in trailing arm).

KINEMATICS OF GCS
Proper motions and Age/metallicity distribution

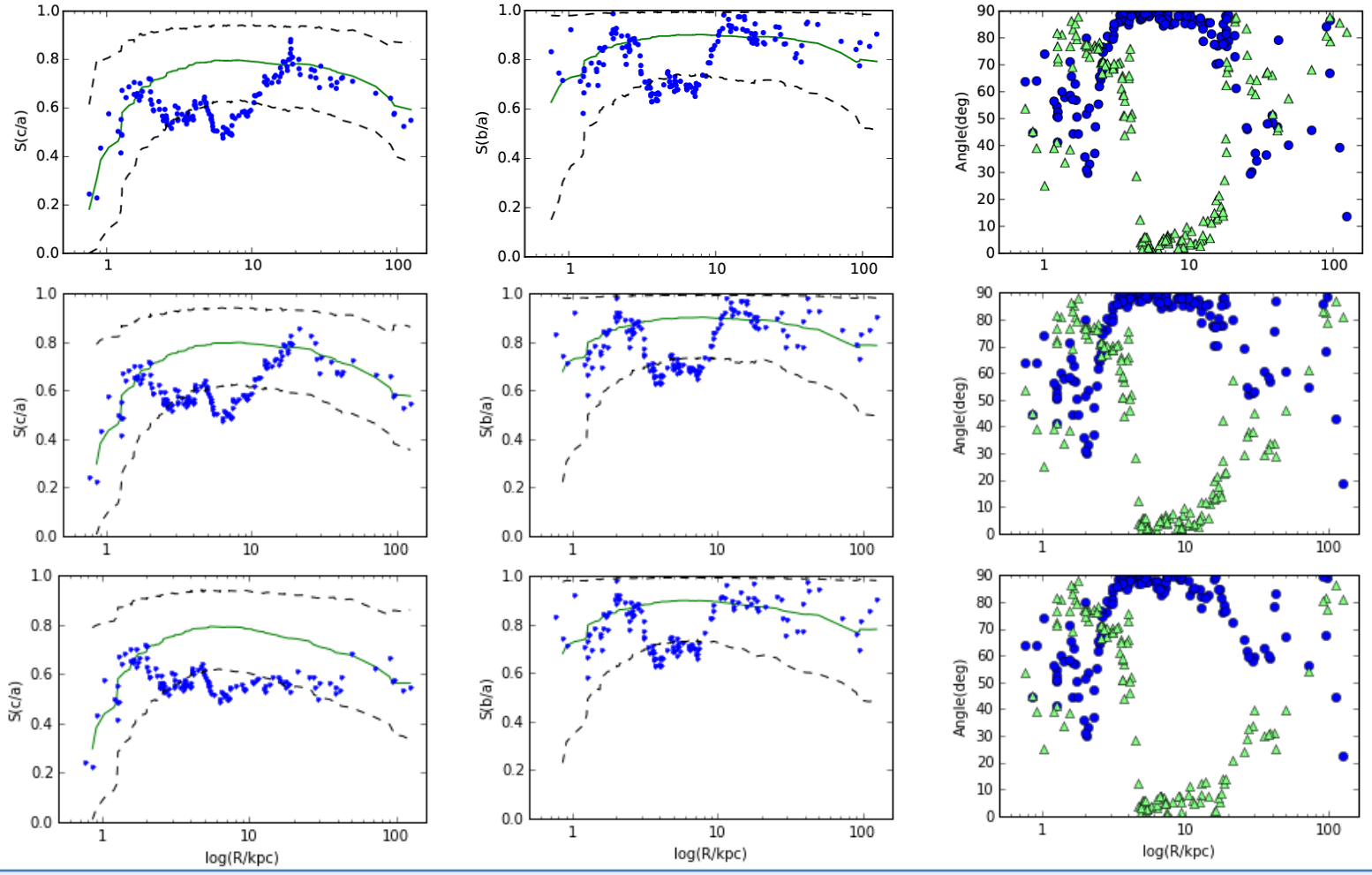


Map of the sky in Galactocentric Galactic coordinates. Gray dots represent the Sgr tidal stream model (LM10a). Star marks show stars in the leading arm and triangles show stars in the trailing arm (real data). Red and black arrows show proper motions for 8 GCs belonging to the stream and for 15 candidates respectively. The cyan arrow is the average proper motion of the 6 nearest neighbors of the stars in the stream and cyan arrow with a purple tip is proper motion of Sgr dSph.



The red dots show 4 GCs belonging to the stream, yellow dots show those clusters of 8 GCs that dier in their proper motions from the average proper motions of their nearest neighbors. The red line is the trend line for the 8 GCs (4 red and 4 yellow dots) and the yellow line is the trend line for 4 GCs candidates (yellow dots). Black dots show candidates (15 GCs), respectively, the black line is the trend line for these points. Empty black circles are the remaining GCs of the Galaxy.

The anisotropy of GCs quantified by the inertia tensor



Top row all GCs; middle row without 8 GCs in the stream; bottom row without 23 GCs. The left and middle columns show the distribution of c/a and b/a as function of satellite galactocentric distance, respectively. Each blue dot represents the cumulative eigenvalue ratio of these tensors computed for all galaxies interior to that position. The solid green line represents the median eigenvalue ratios for 10,000 random samples that maintain the same radial distribution as the data, but whose L and B has been randomised. The dashed lines represent the ±3σ of such random distributions. The right column shows the angle, measured in degrees, subtended between the Milky Way`s galactic pole and the major and the minor axis of the inertia tensors.


Thank you