

No globular cluster progenitors in Milky Way satellite galaxies

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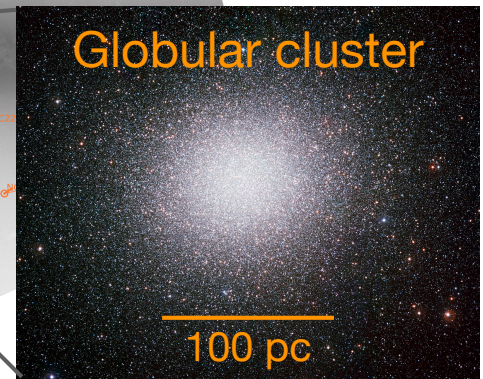
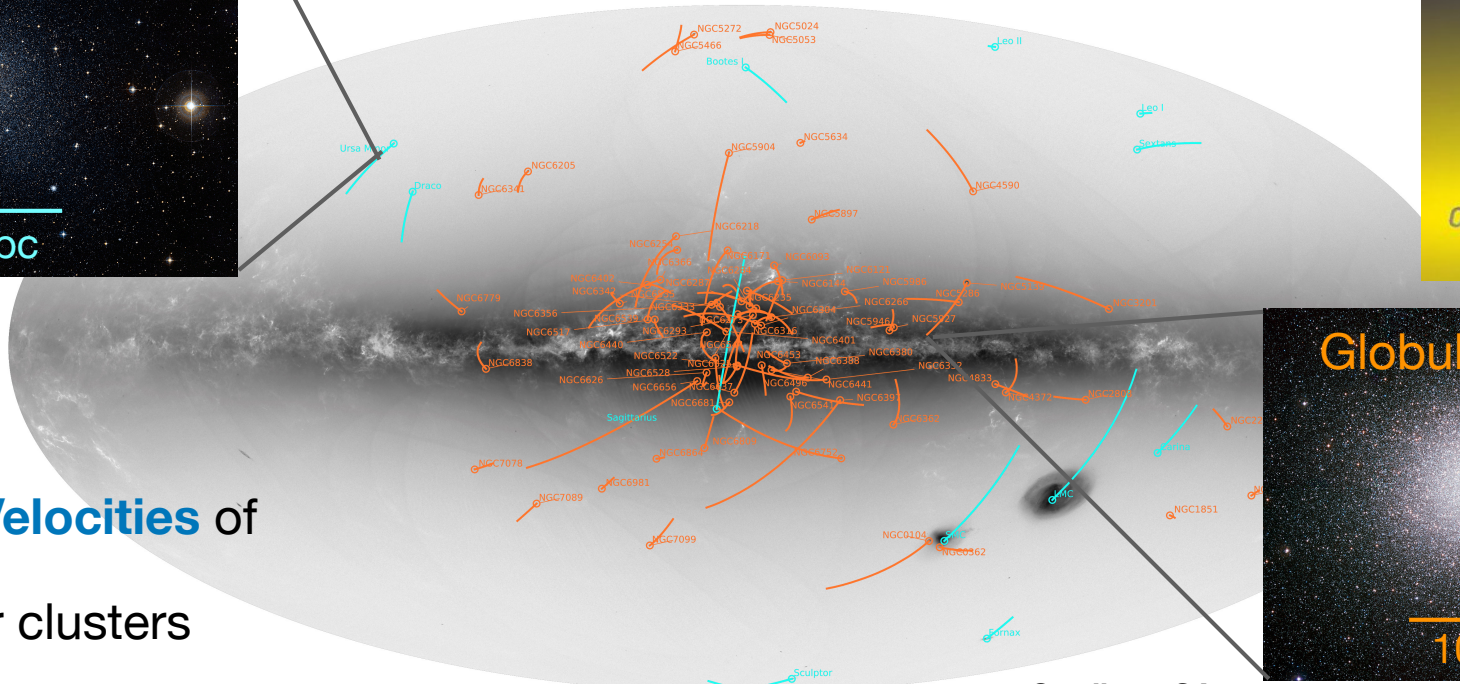
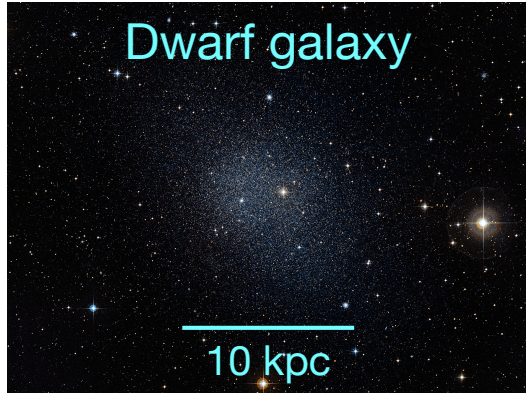
[arXiv:2106.09419](https://arxiv.org/abs/2106.09419)



gaia
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optical

GAIA DATA RELEASE 3



Positions & Velocities of

151 globular clusters

11 classical dwarfs

Credits: ESA



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METHOD

Positions & Velocities of

151 globular clusters + 11 classical dwarfs
uncertainties & measurement errors



Orbital integrations backwards in time in MW+satellite potential with *galpy* (Bovy+15)



Globular cluster-satellite association criterion:



$$r_c^{GC}(t_i) < r_t^{SG}(t_i)$$



$$v^{GC}(t_i) < v_{esc}^{SG}(t_i)$$

TESTS OF OUR METHOD



Sagittarius dwarf and its 6 globular clusters



LMC and Dark Energy Survey dwarfs

RESULTS



None of the 151 globular clusters show any clear association with the 11 MW satellites



Now disrupted satellites



Globular clusters may have had a dark matter halos