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# Keeping track of nearly a hundred stellar streams in the Milky Way: the galstreams library

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In this contribution I showcase the latest version of the galstreams library, a compilation that collates information scattered across the literature for over a hundred stellar streams known in the Milky Way.

Stellar streams play in dynamics a similar role as stellar clusters do in stellar evolution: they are relatively simple systems of stars whose common properties allow rewinding evolutionary or dynamical processes that would be much harder to disentangle in the Galactic field. Formed as stars are stripped from a dwarf galaxy or globular cluster by the Milky Way's tidal forces, stellar streams are fossil records of accretion that are best preserved in the halo, where streams are long lived. Unearthing this record is essential to reconstructing the Galaxy's accretion history, and modeling its dynamics is key to constrain the distribution of dark matter at the scales of the Galaxy and its satellites.

The *galstreams* library (Mateu, 2023) is an effort to keep track and collate the information available for the stellar streams reported in the literature in a homogenized format. Figure 1 shows the timeline of discoveries of stellar streams, illustrating the exponential growth experienced by the field in the last few years, driven by the advent of exceptionally deep and wide photometric surveys (e.g. PS1, DES Flewelling et al., 2020; Abbott et al., 2018) and the landmark of the Gaia second and third data releases (Gaia Collaboration et al., 2018, 2023), in which proper motion information became available for the first time for millions of stars spanning the entire sky to great depths. These landmarks have ushered in a new era where studies of stellar streams can expand from modeling individual systems to ensemble modeling, with the consequent improvements this implies for the inference of dynamical parameters both for the stream's progenitors as for the Milky Way itself.

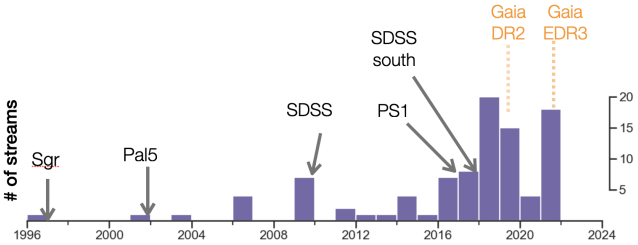


**Figure 1.** Timeline of stellar stream discoveries, based on the discovery year for the streams reported in the *galstreams* library.

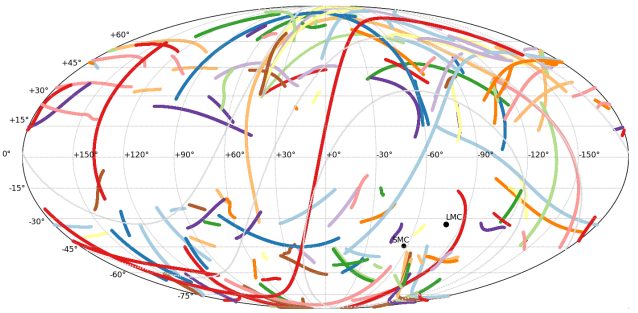


**Figure 2.** Celestial distribution, in Galactic coordinates, of the > 100 stellar stream tracks catalogued in the *galstreams* library v1.0.1.

The library is publicly available at the *galstreams* GitHub repository[1] and described in detail in Mateu (2023). Figure 2 showcases the celestial tracks reported for over a hundrer unique stellar streams available in *galstreams*. In addition to the celestial coordinates, information about distance along the track, and when available, proper motions and radial velocities are provided for each stellar stream track. The library is implemented in Python and based on `astropy` SkyCoord functionality.

[1] https://github.com/cmateu/galstreams



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