Combined-Telescope Astrometry

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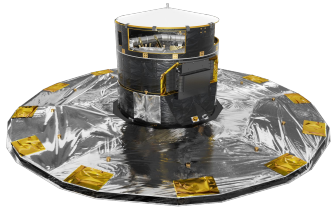
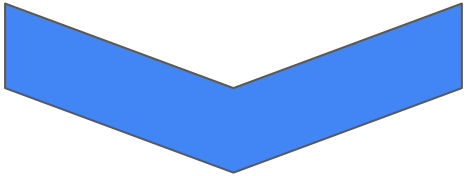
- Built BP3M pipeline to combine Hubble images with Gaia data in a Bayesian framework ([McKinnon et al. 2024 ApJ 972 150](#))



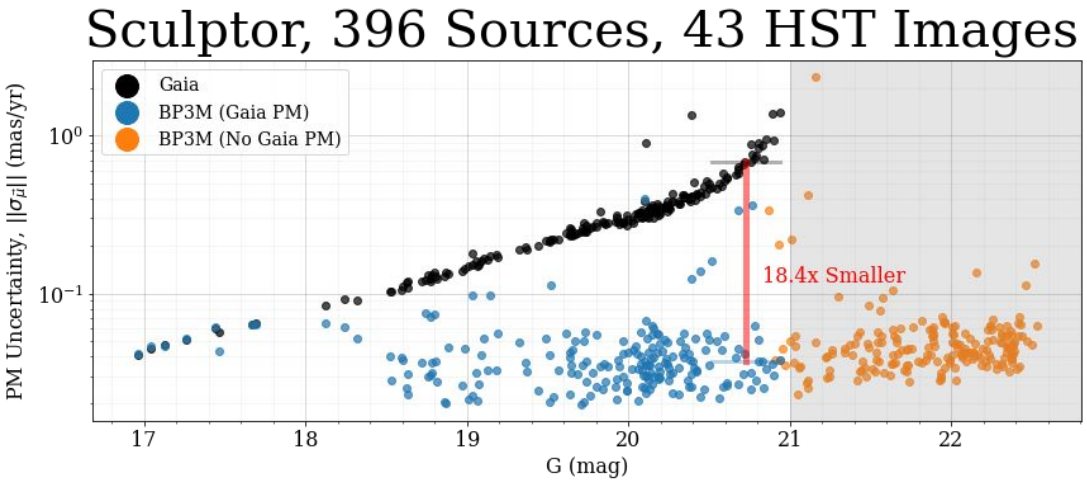
Priors from Gaia-measured PMs, positions, parallaxes

Positions from Hubble images for likelihood



Simultaneously align Hubble images onto Gaia reference frame and measure improved motions

GENERAL & EXTENSIBLE!



BP3M Improvements & Next Steps

Working to build large catalogues of improved astrometry, especially for faint stars, to constrain the Milky Way history in high resolution

Improve Systematic Handling

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Background Galaxy Coordinates

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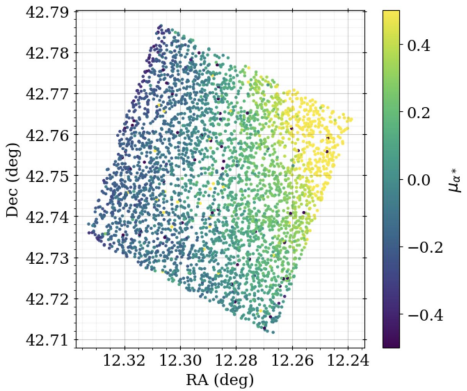
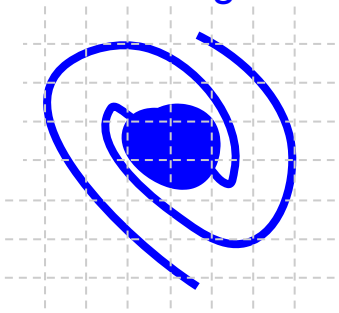
Incorporate More Surveys/Telescopes (JWST, Euclid, SDSS-III, Pan-STARRS, DECam, ...)



Galaxy at first wavelength



Galaxy at second wavelength