

Ana Bonaca

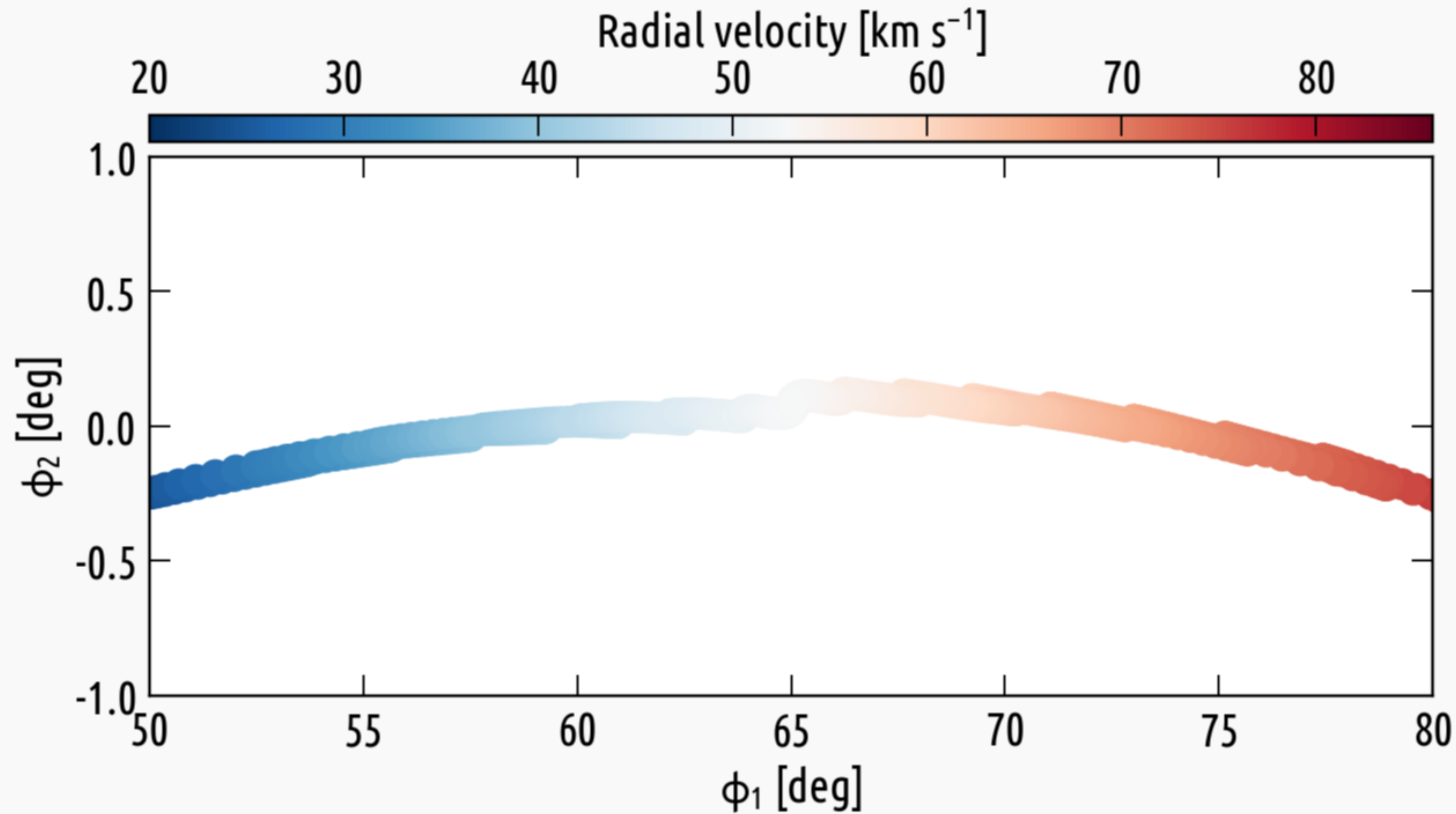
ITC Fellow

Harvard - Smithsonian  
Center for Astrophysics



What are the tidal streams constraining?

# Stellar streams are shaped by the underlying matter distribution



Bonaca et al. (2014)



$\log M_d / M_\odot = 10.833$

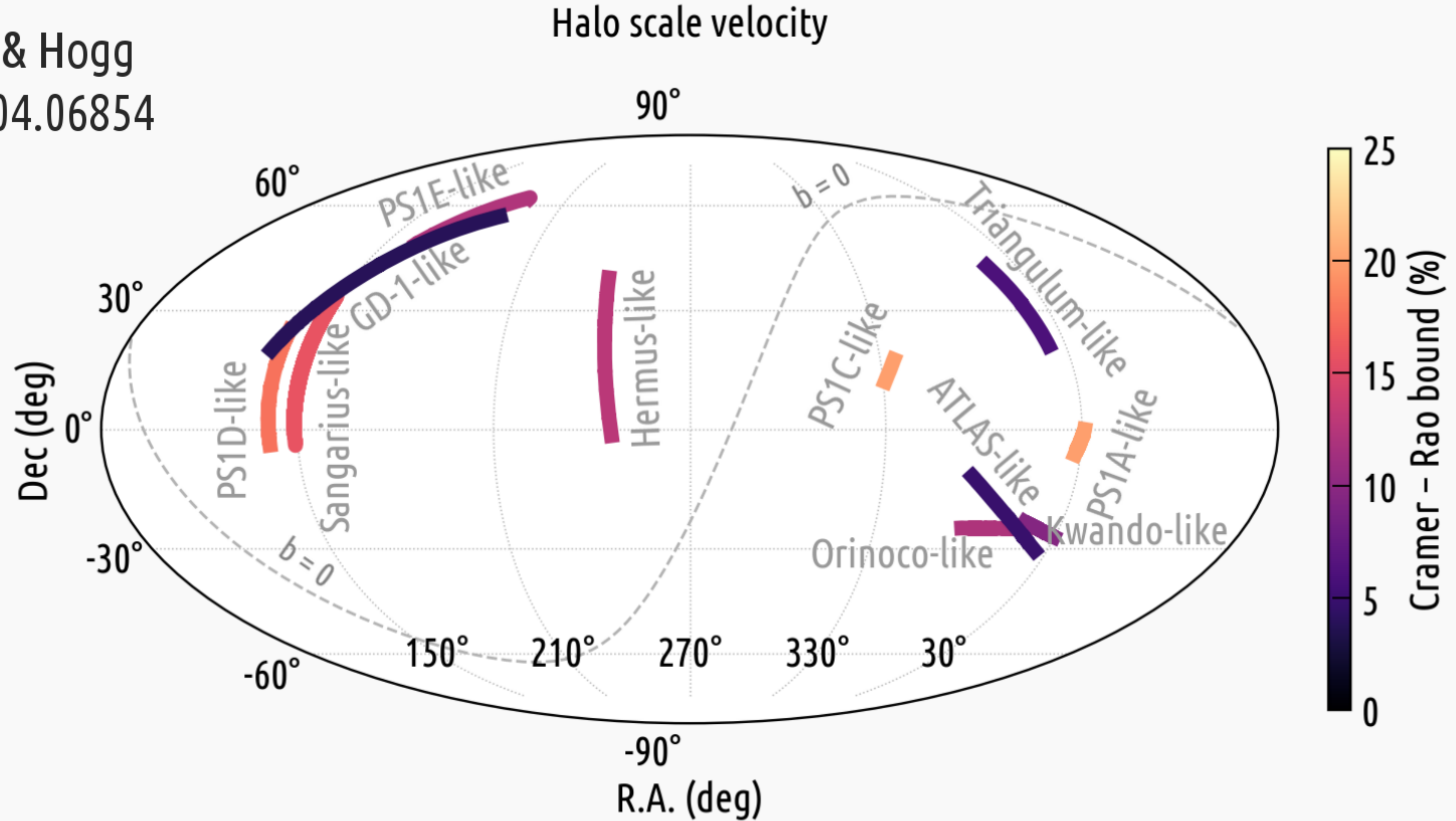
$V_h = 430 \text{ km/s}$

$q_z = 1.000$

Johnston et al. (1998) | Varghese et al. (2011) | Price-Whelan et al. (2013) | Sanders et al. (2013)

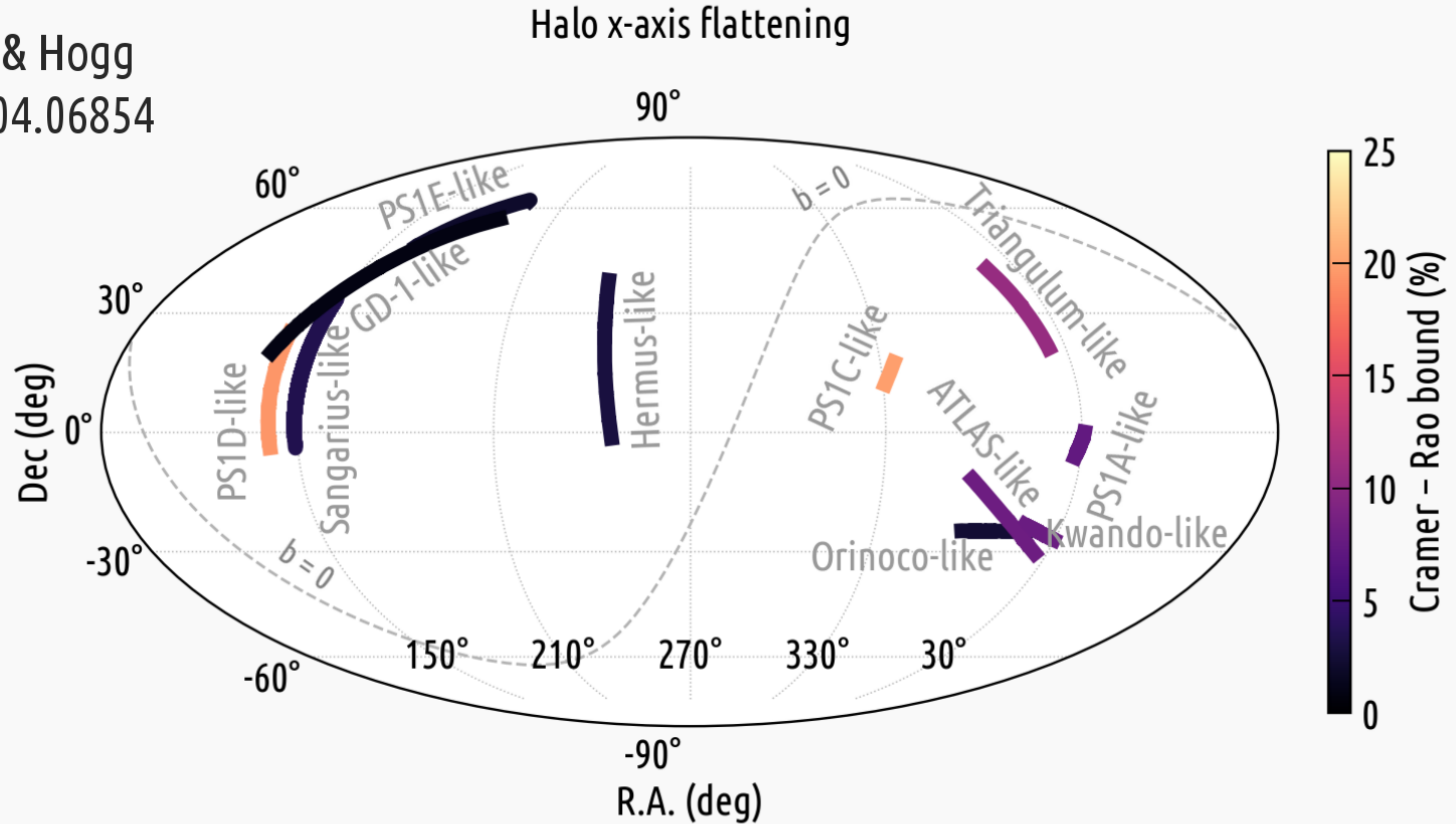
# Different streams measure different aspects of the Galactic halo

Bonaca & Hogg  
arXiv:1804.06854



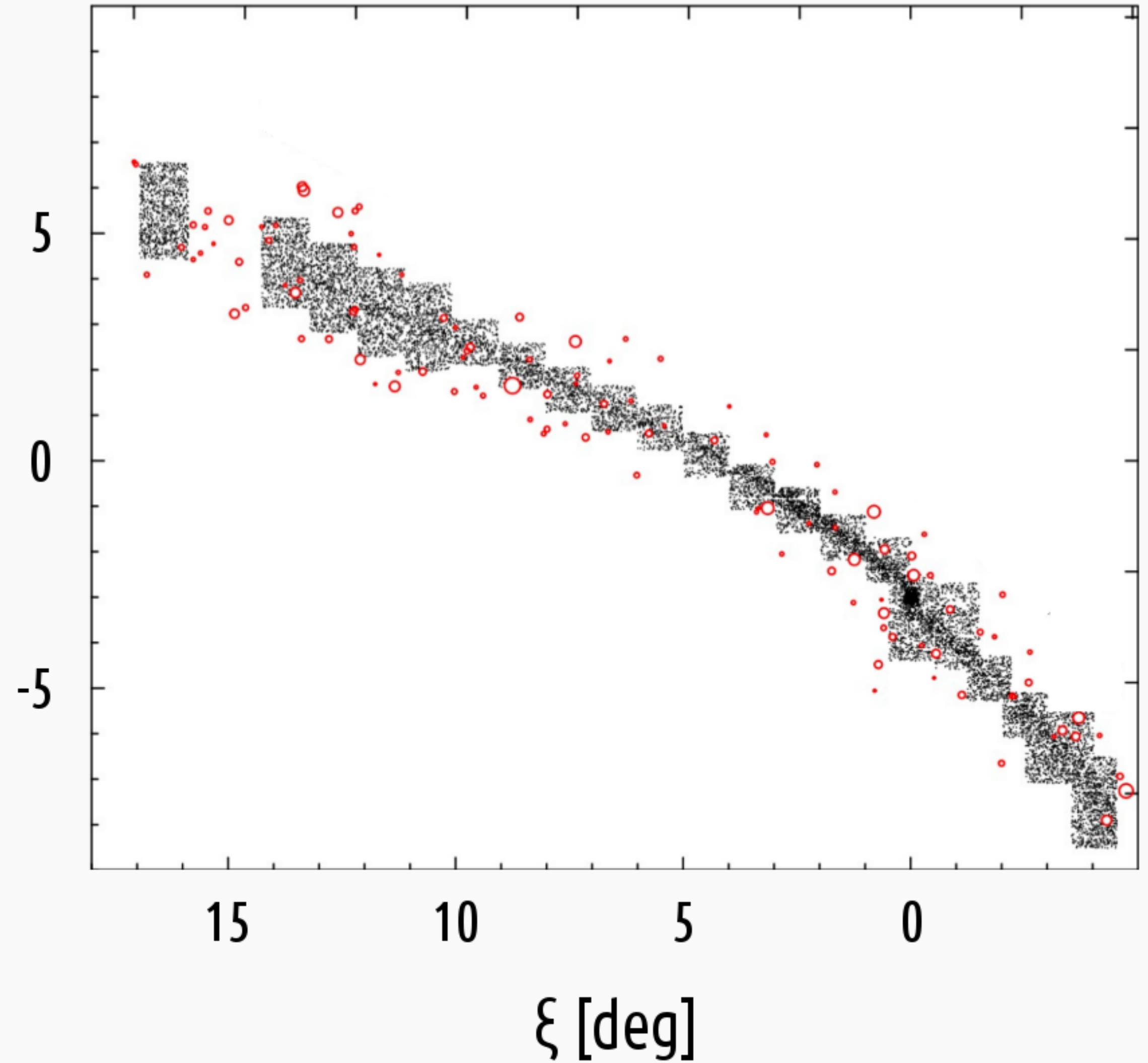
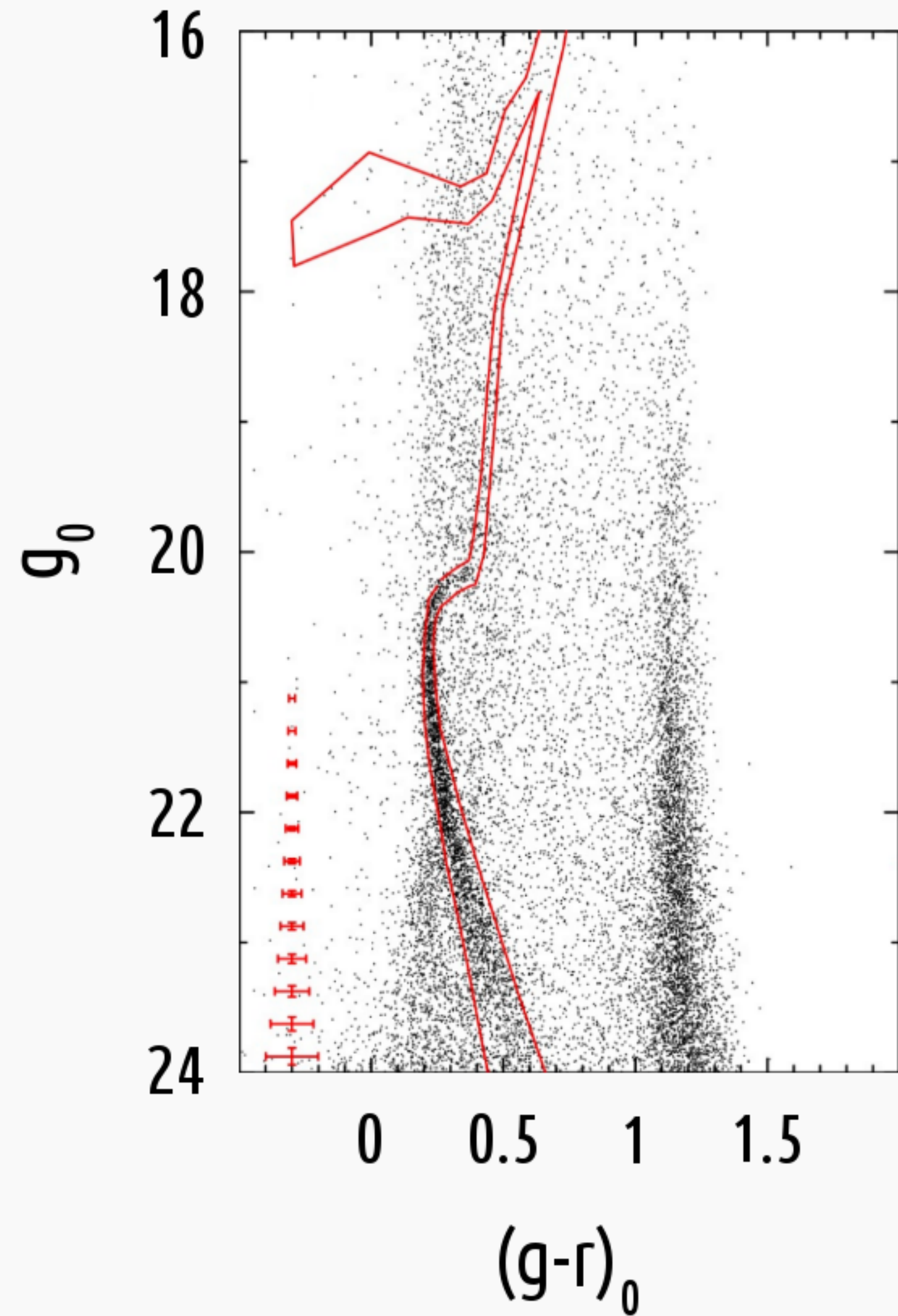
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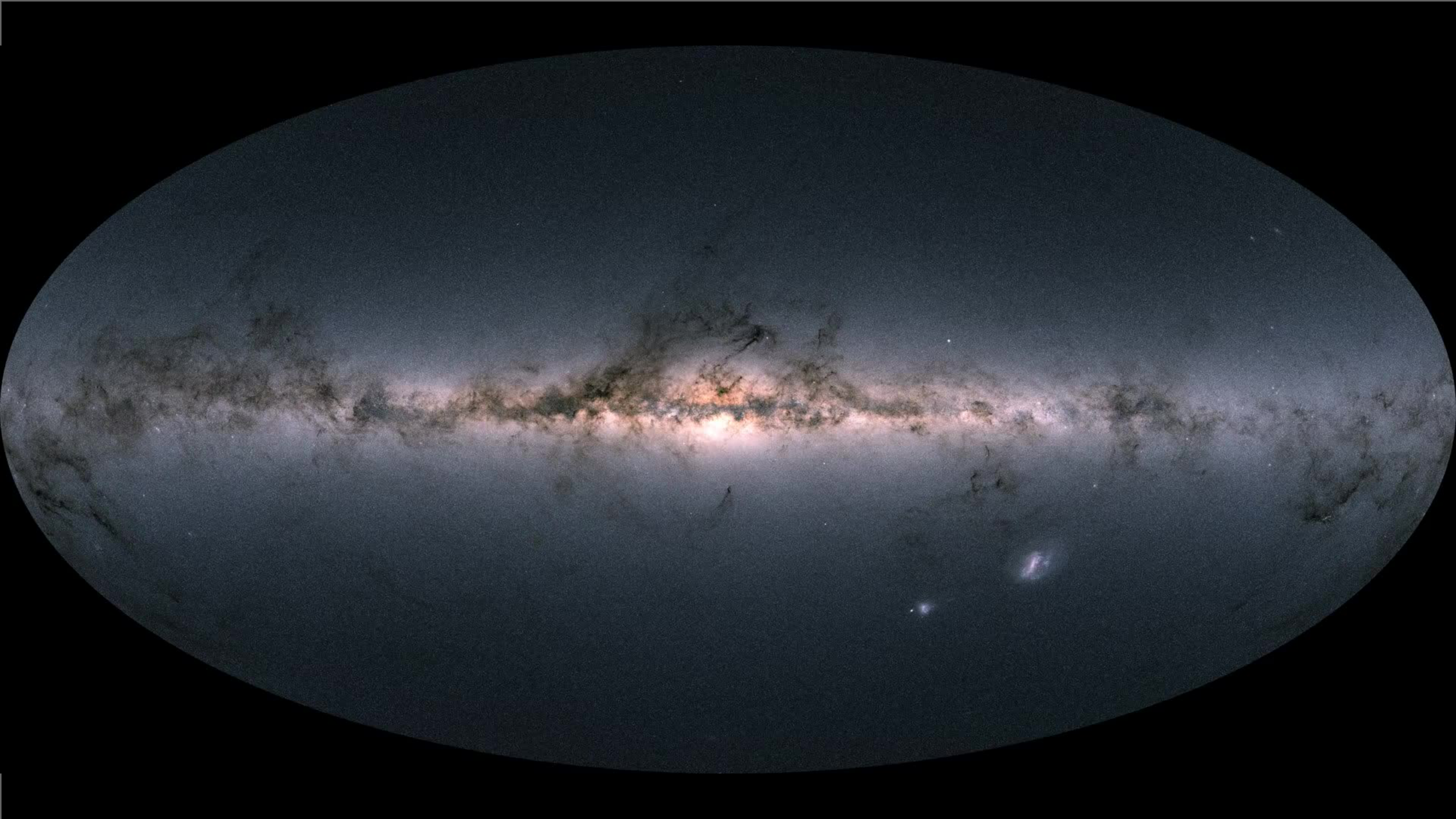


# Stream observations so far have revealed regular profiles



Ibata et al. (2016)

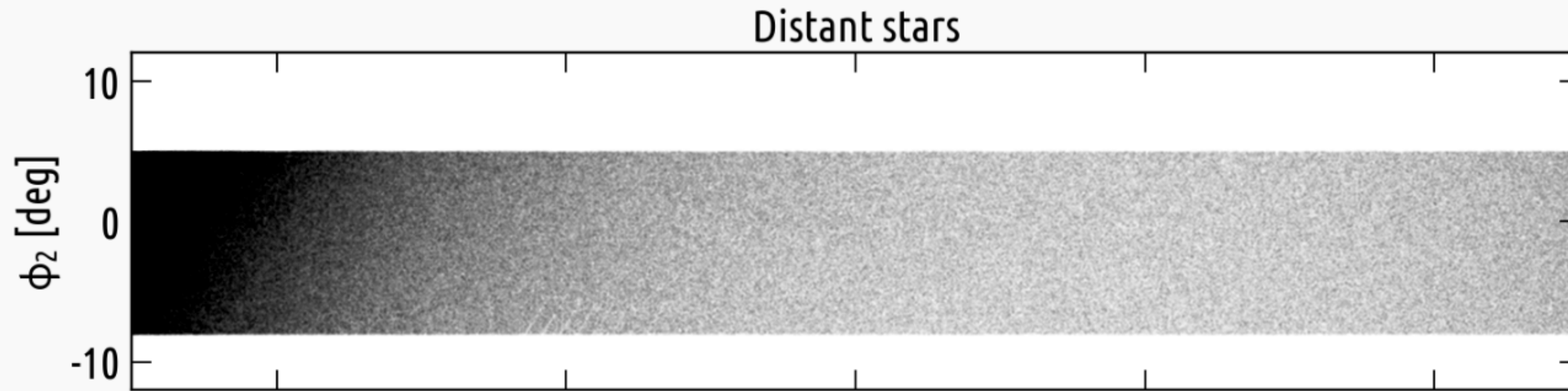






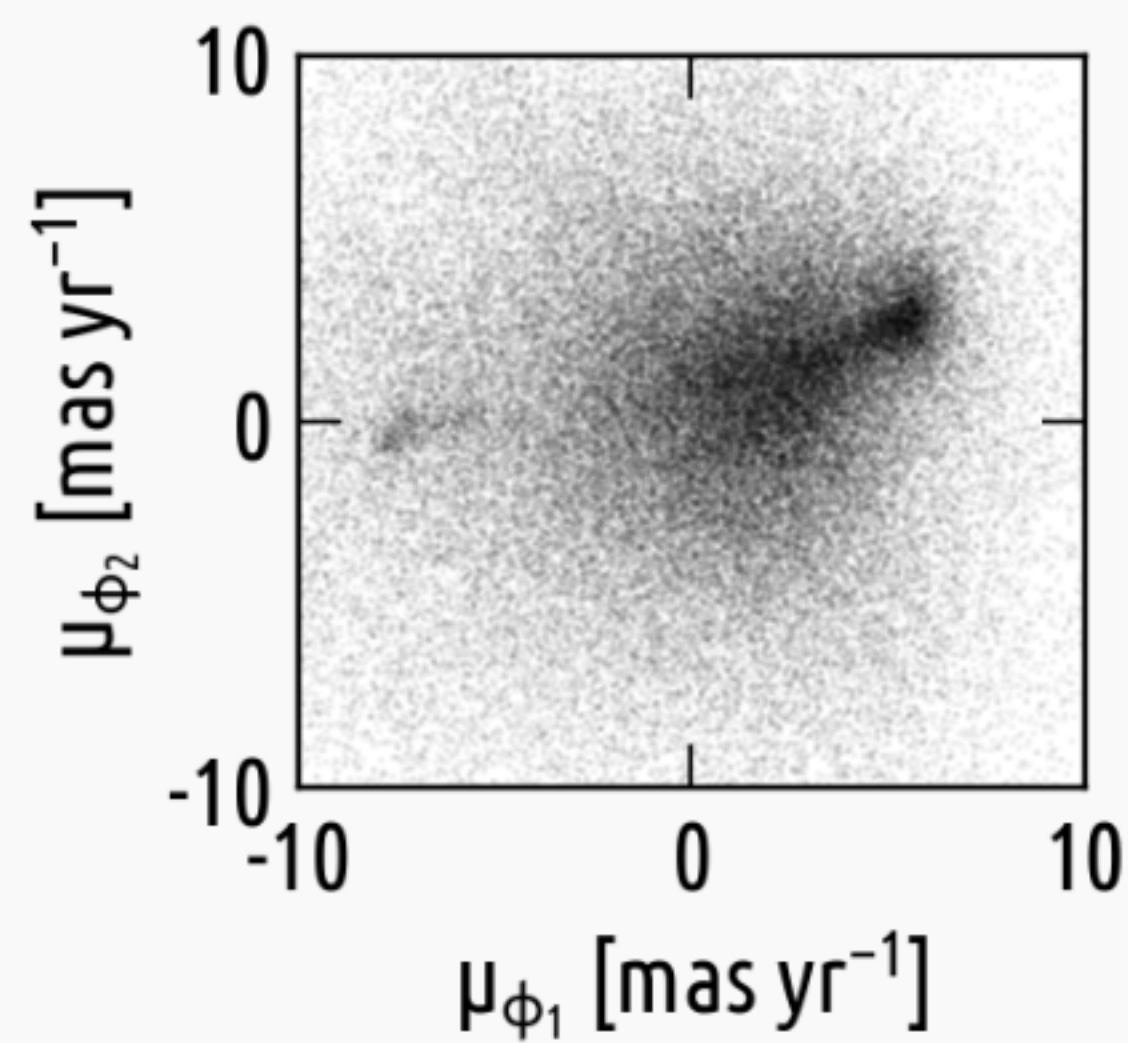
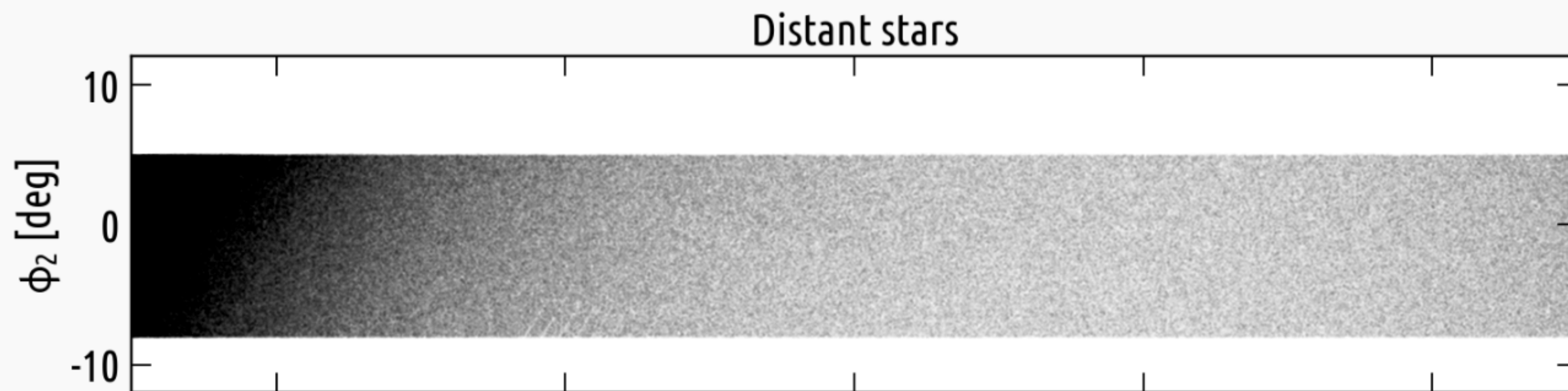
# Gaia's view of the GD-1 stellar stream

Price-Whelan & Bonaca  
arXiv:1805.00425



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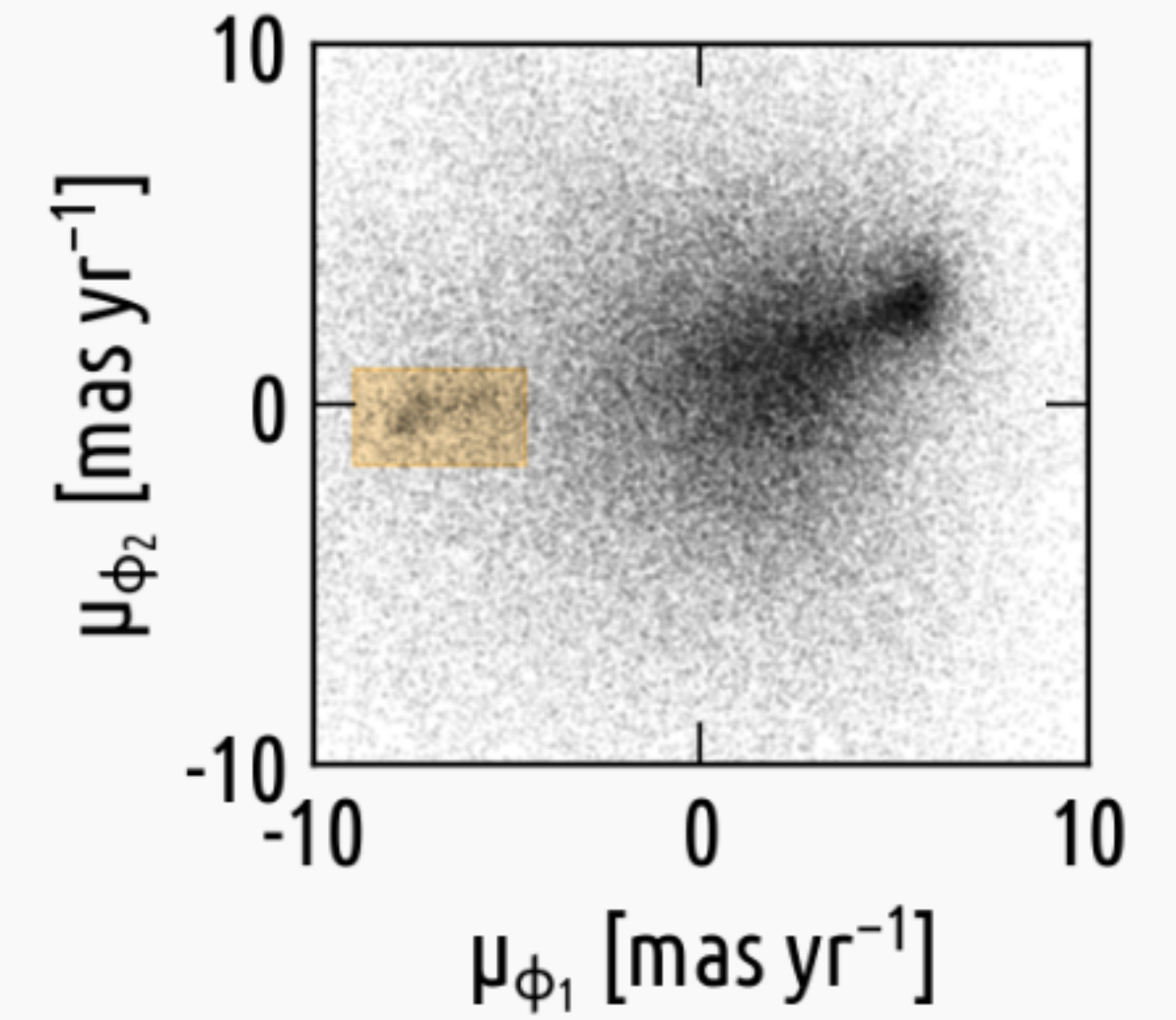
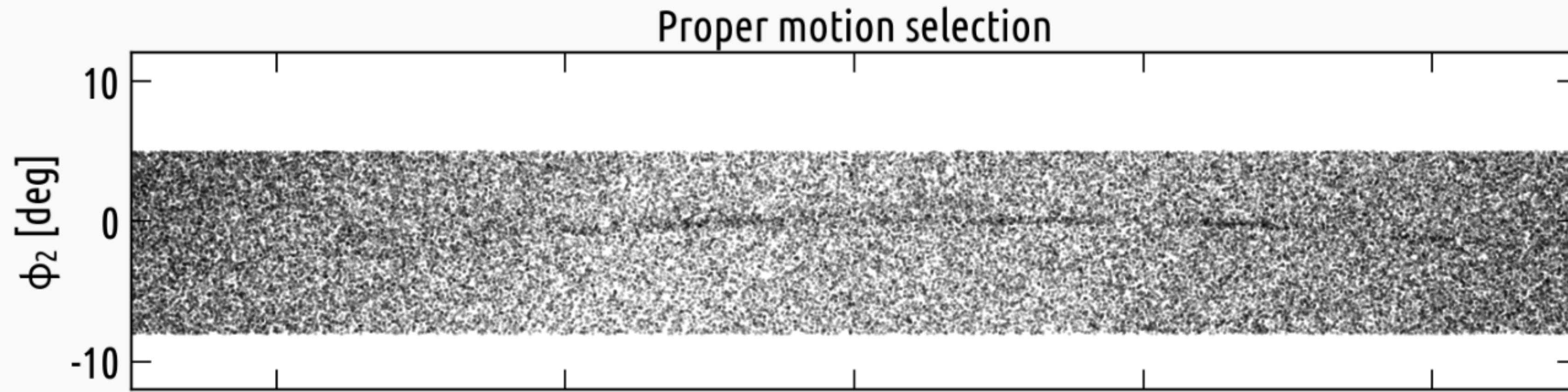
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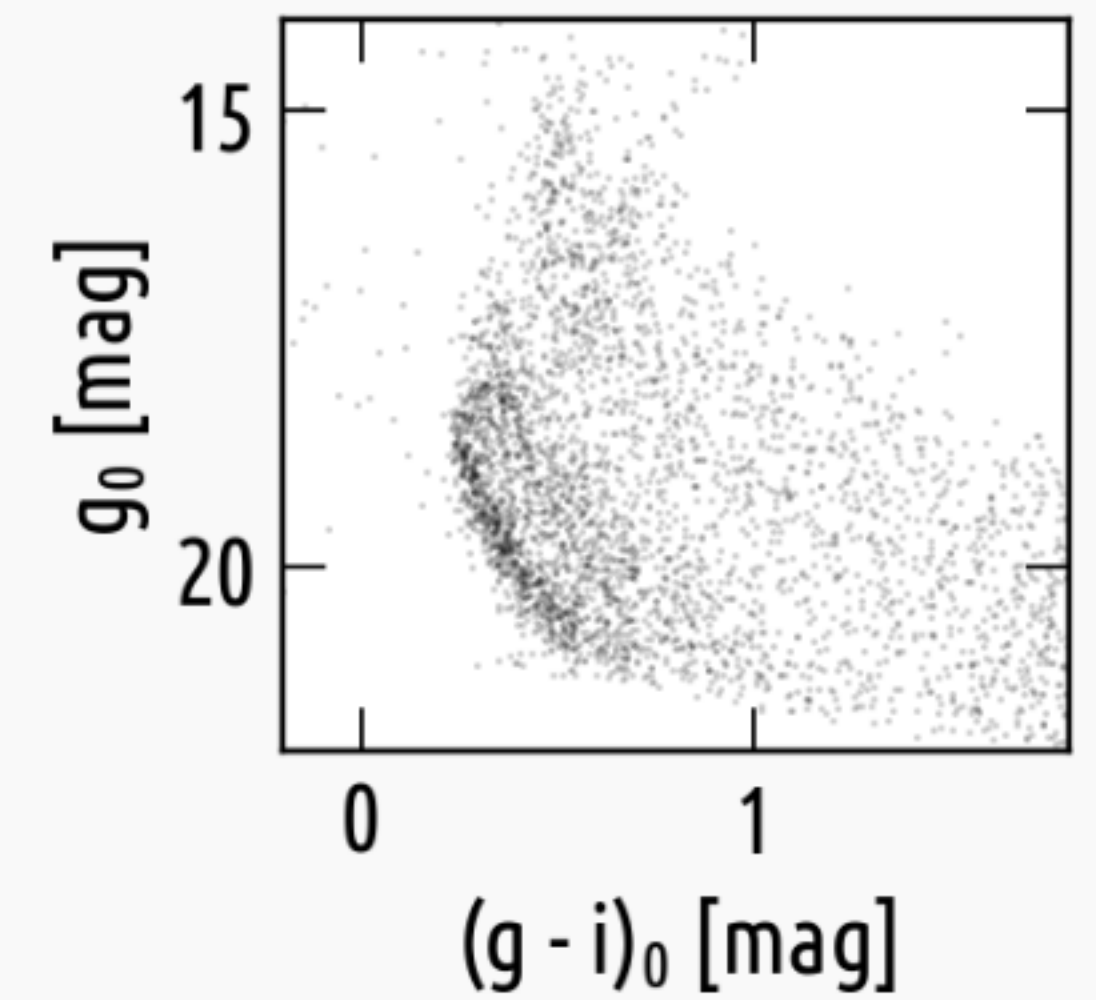
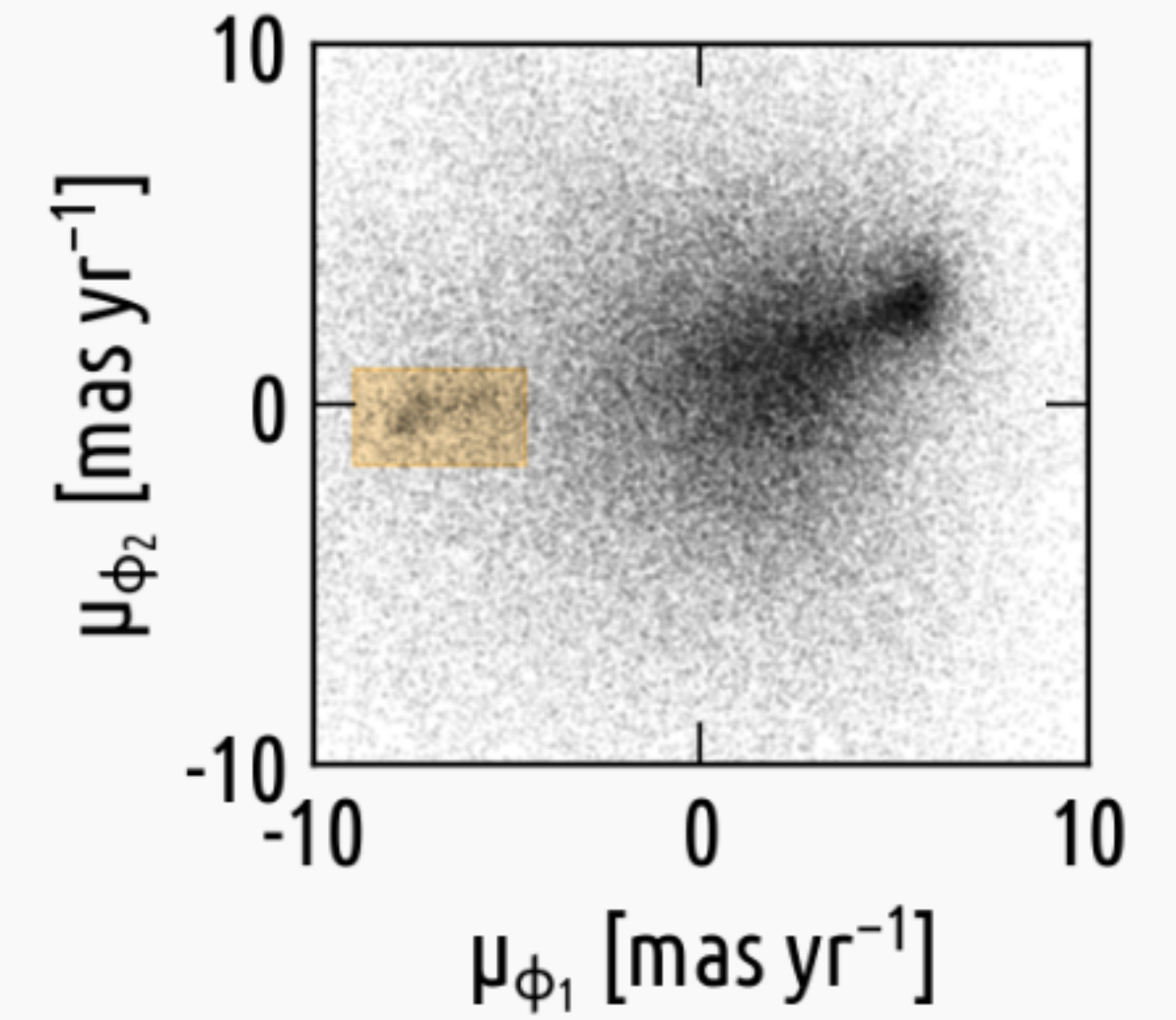
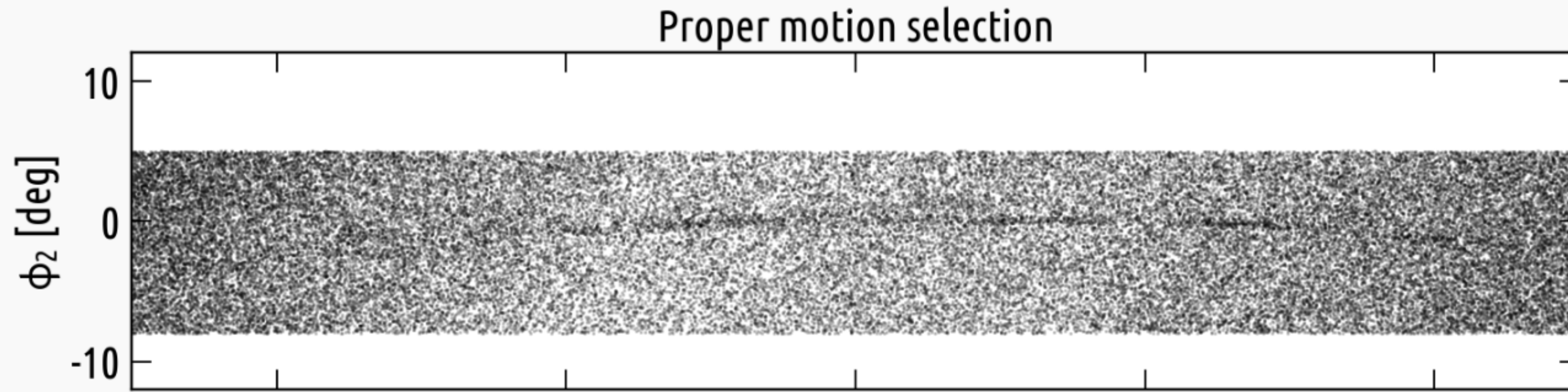
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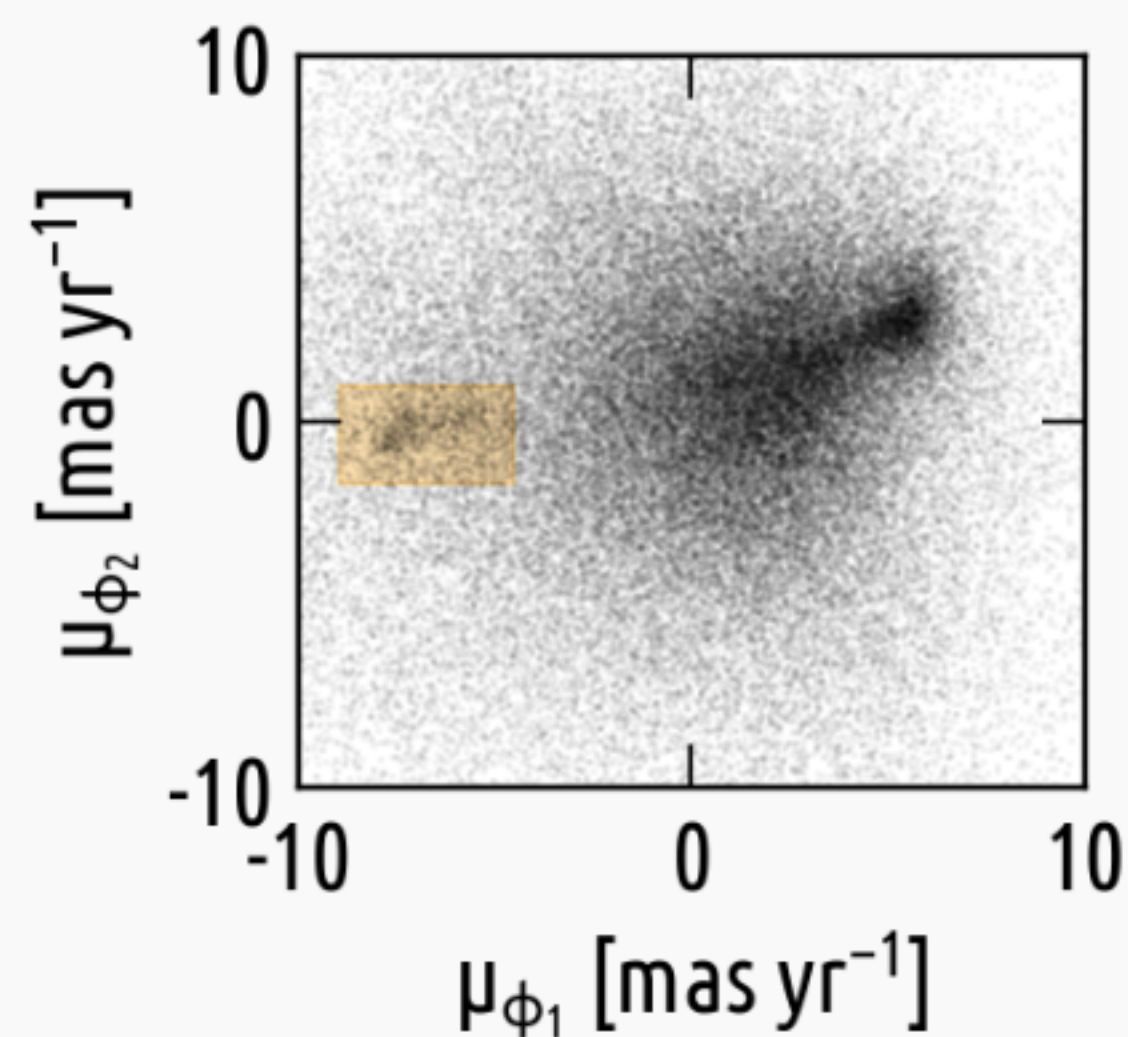
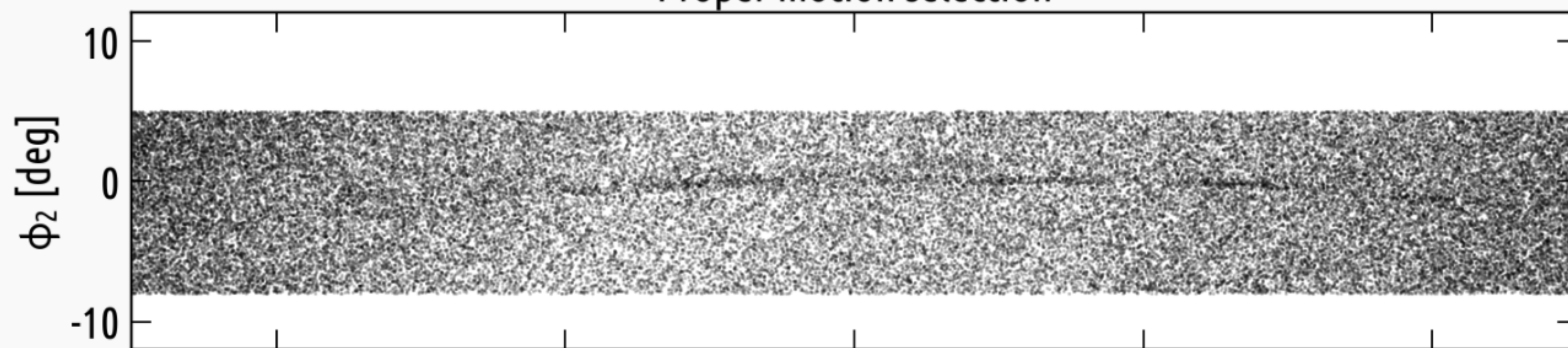




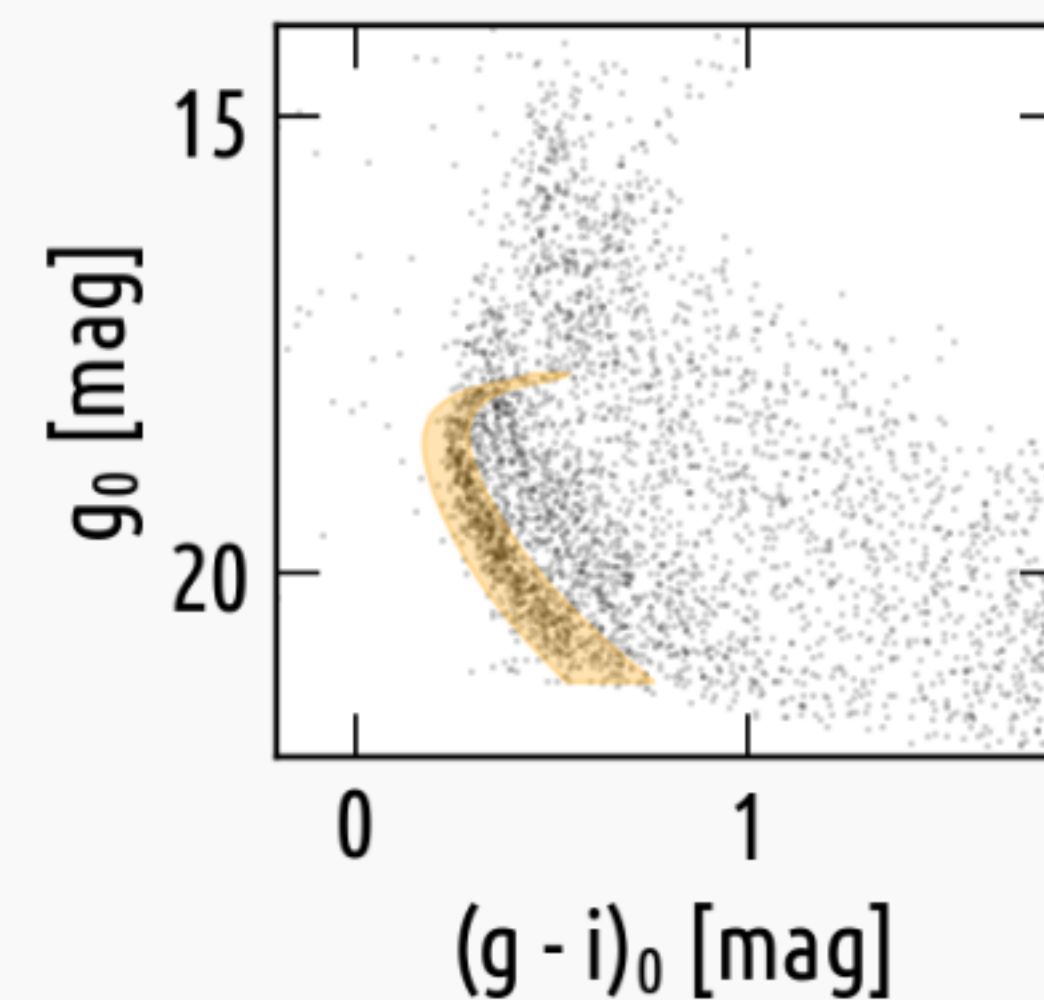
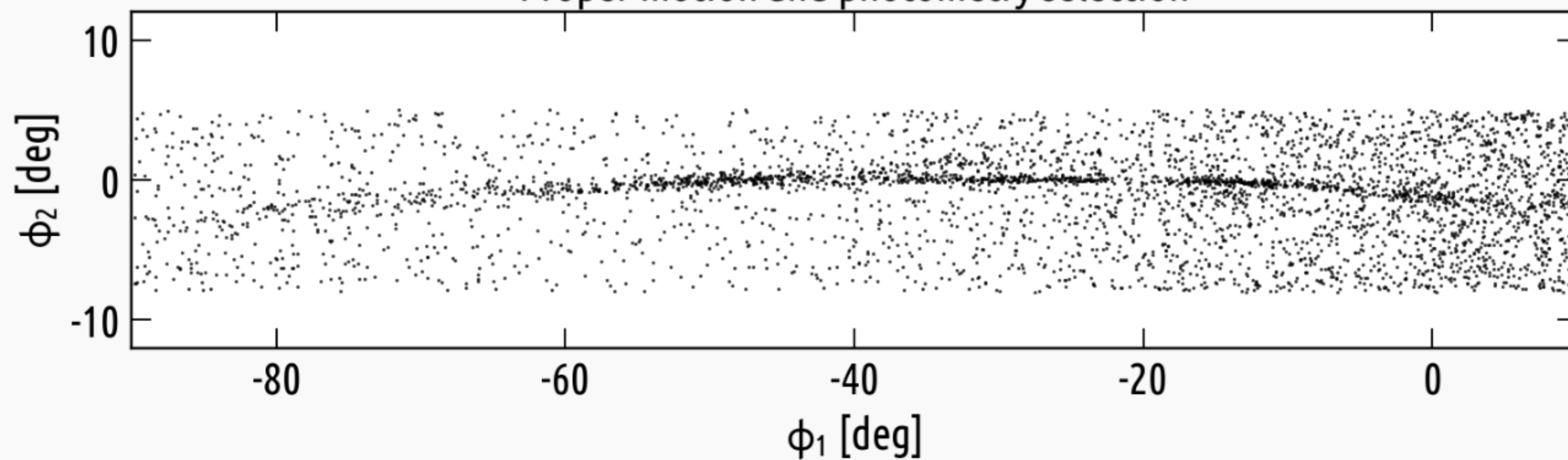
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Proper motion selection



Proper motion and photometry selection

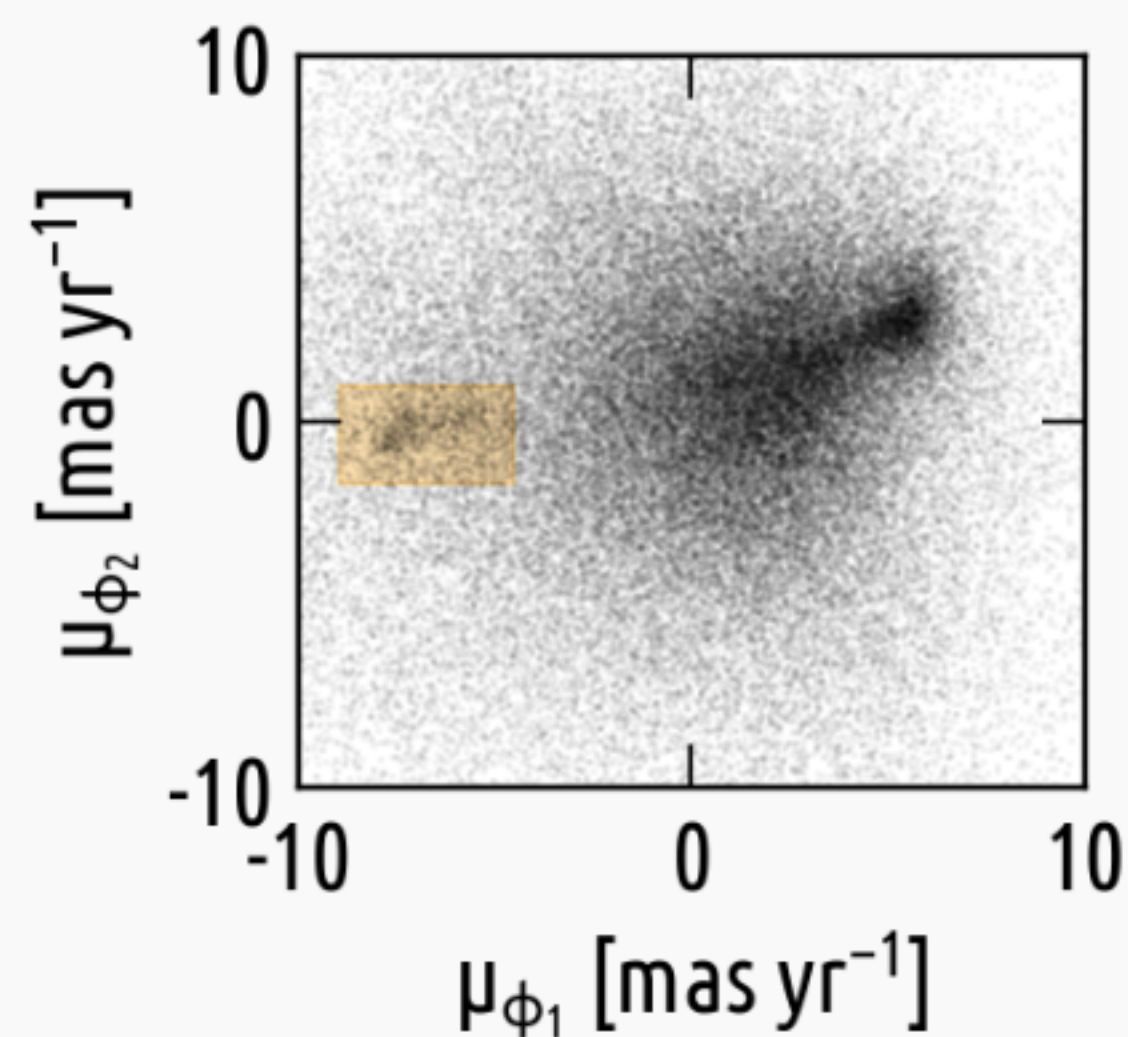
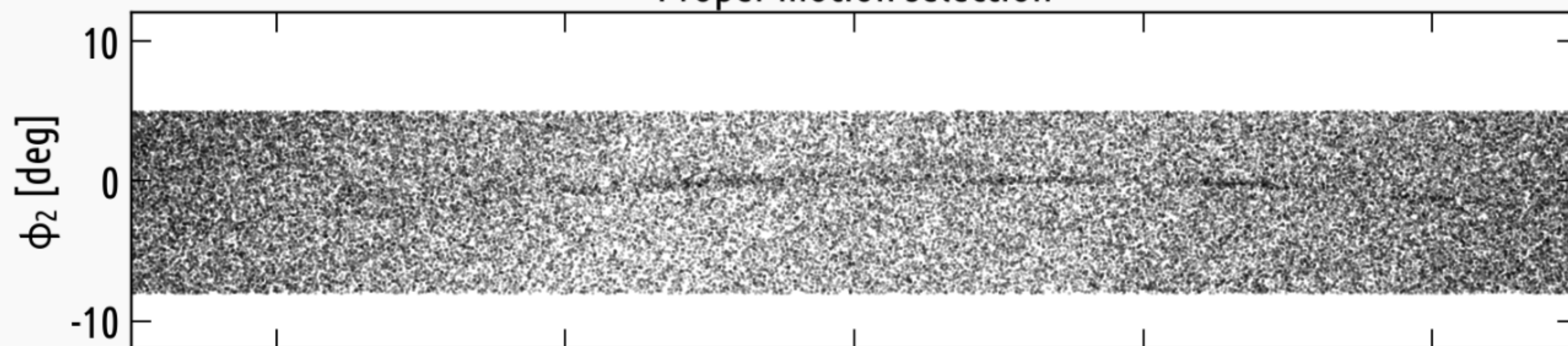




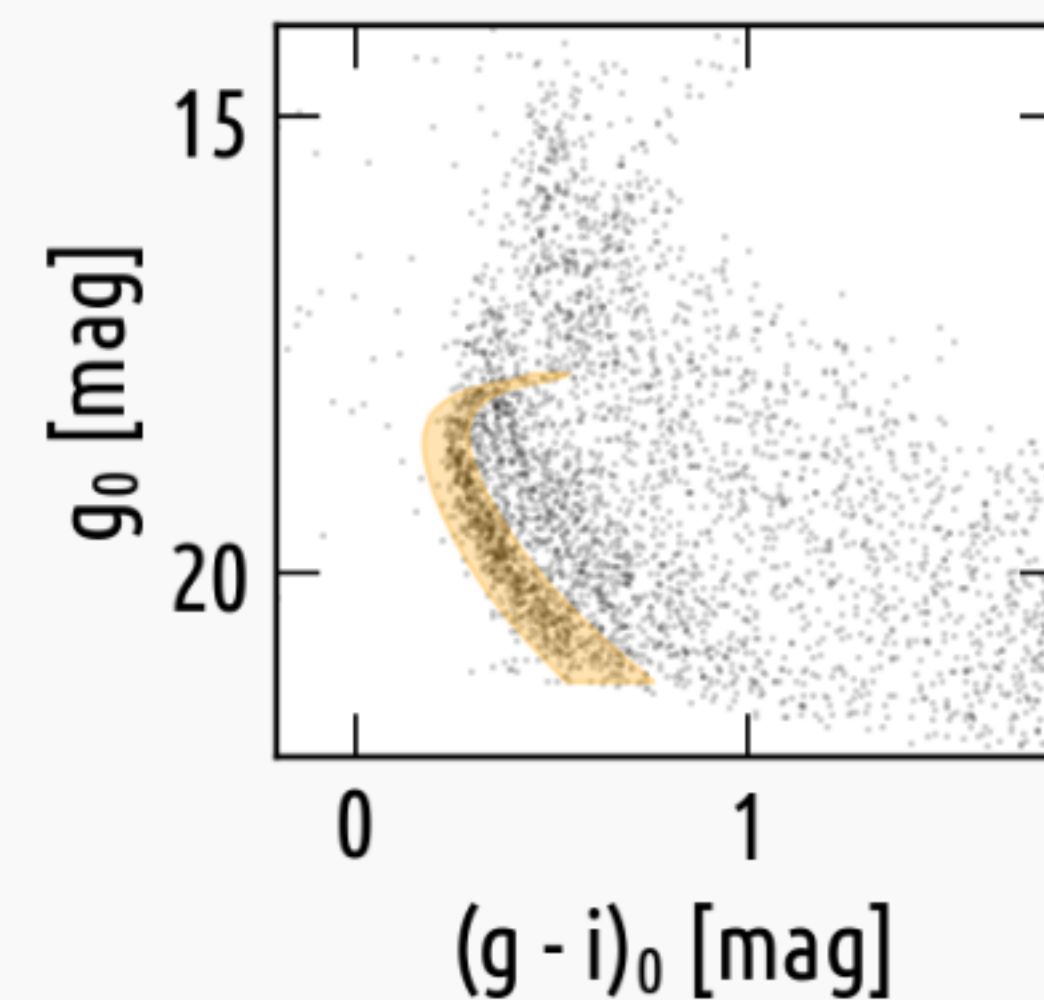
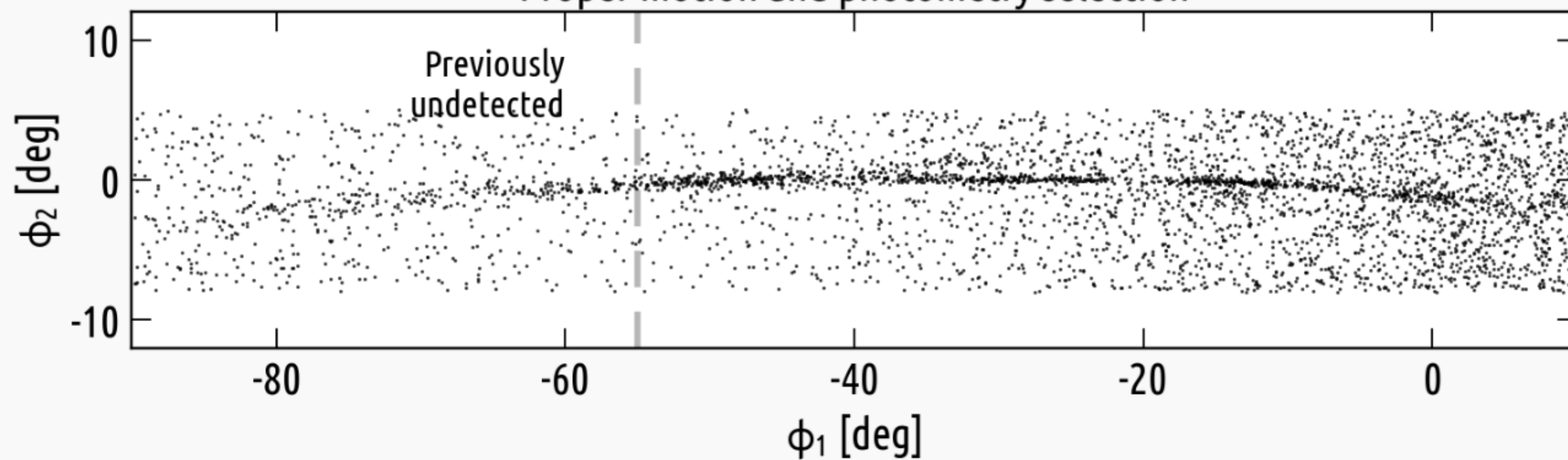
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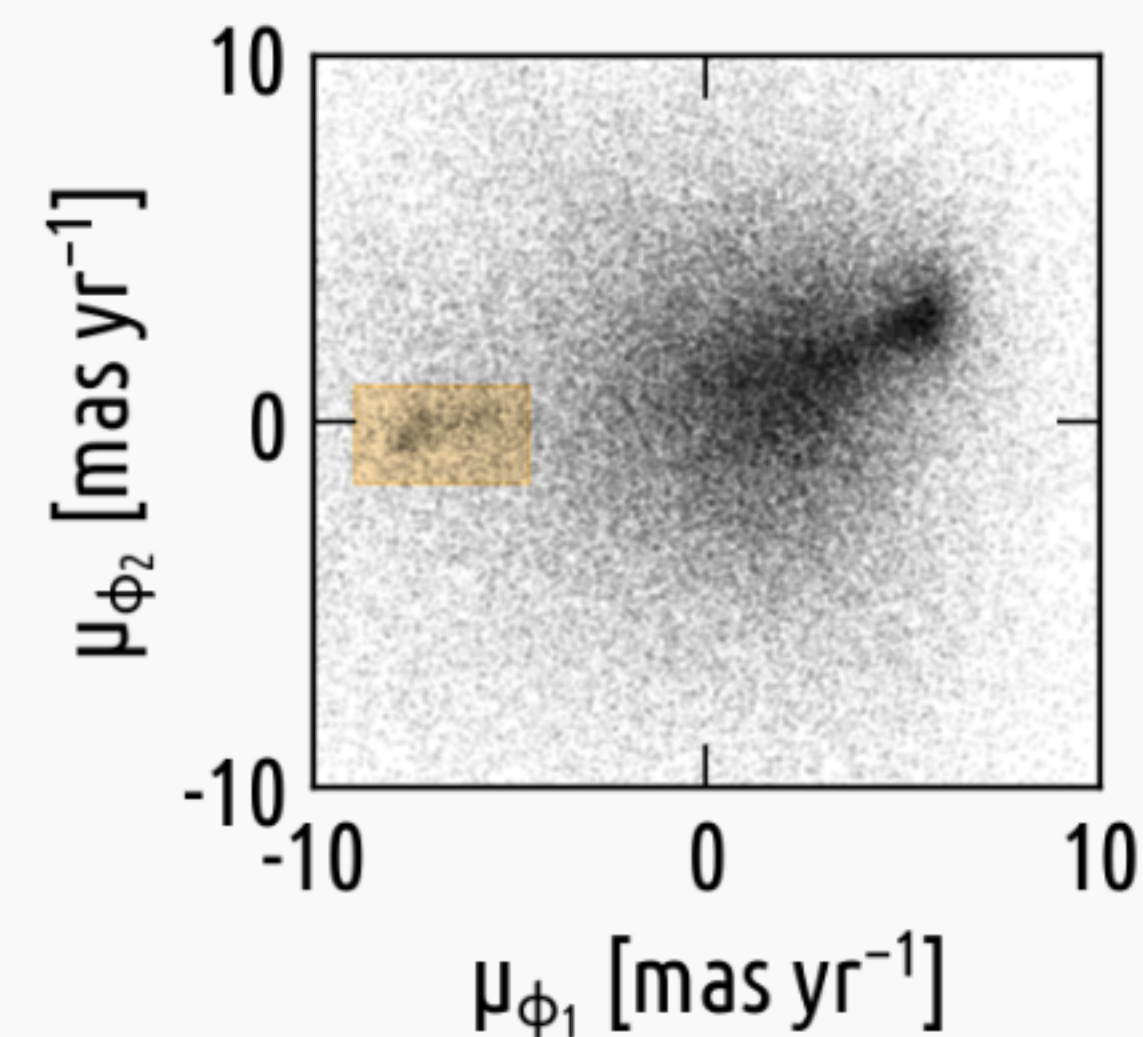
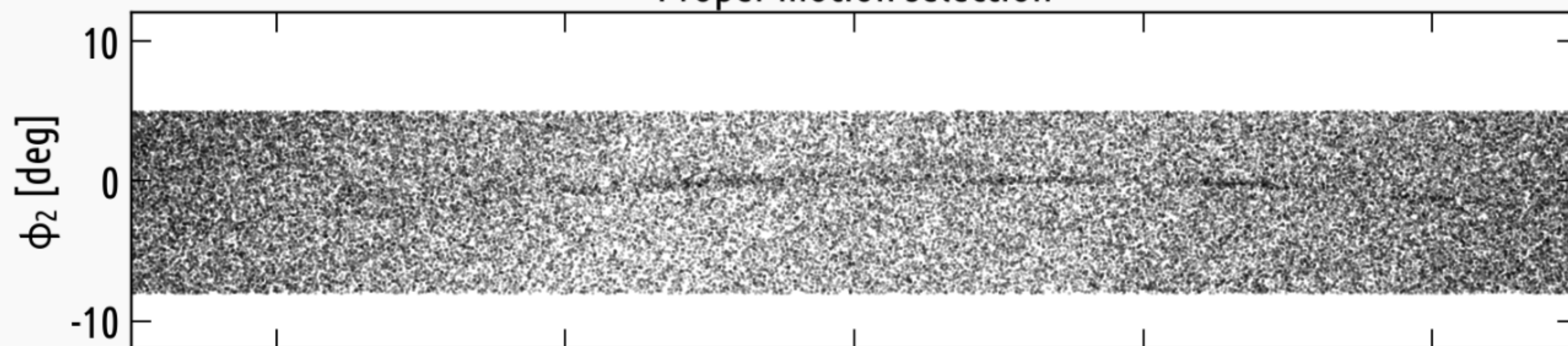




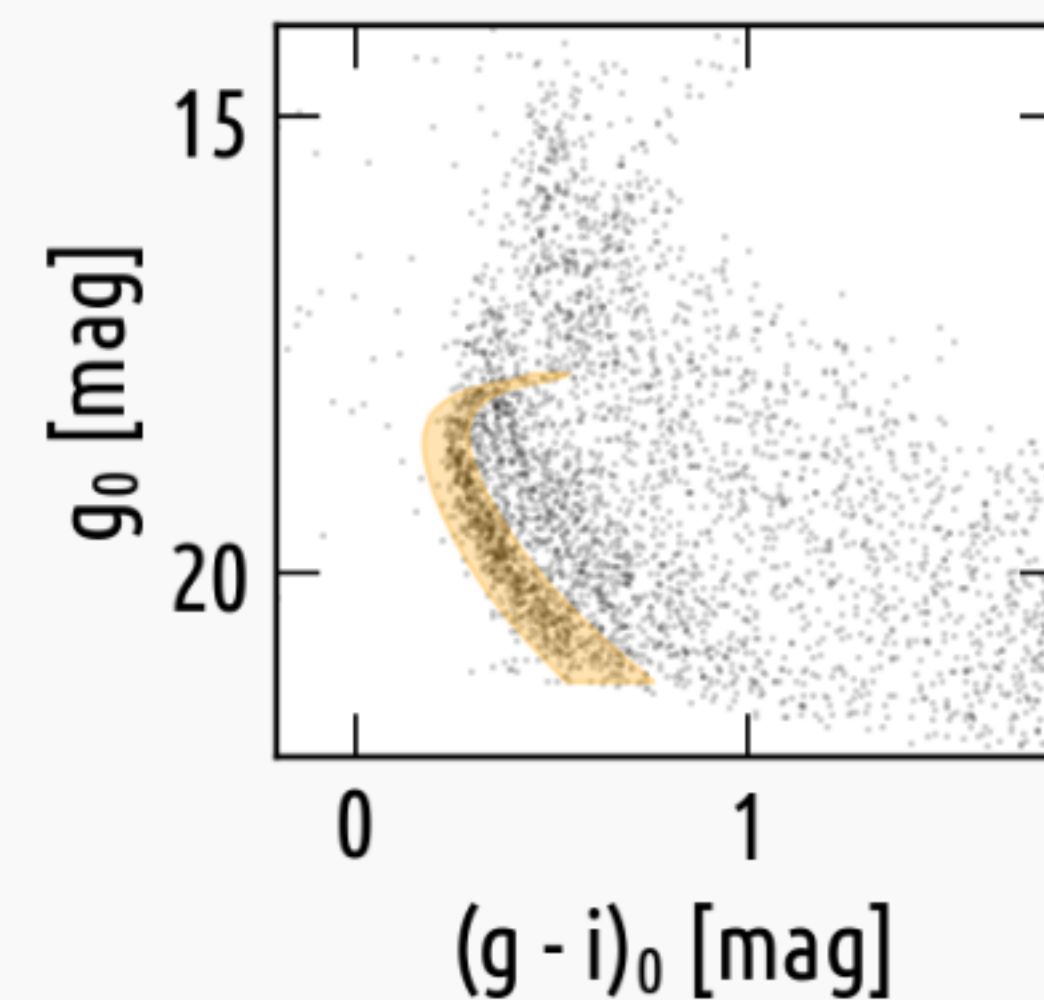
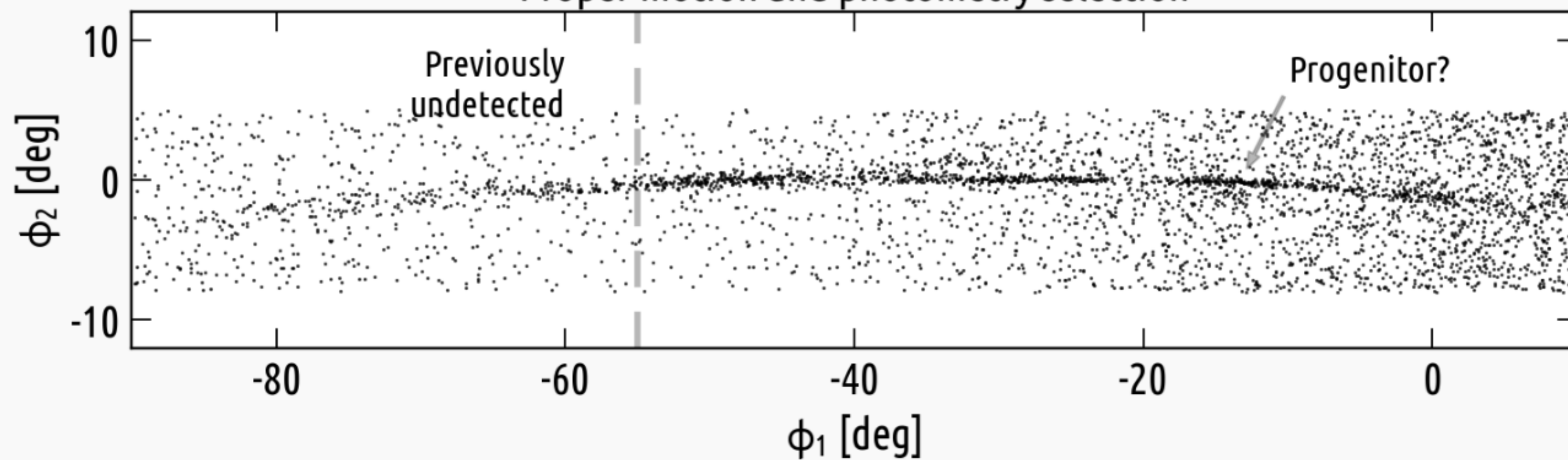
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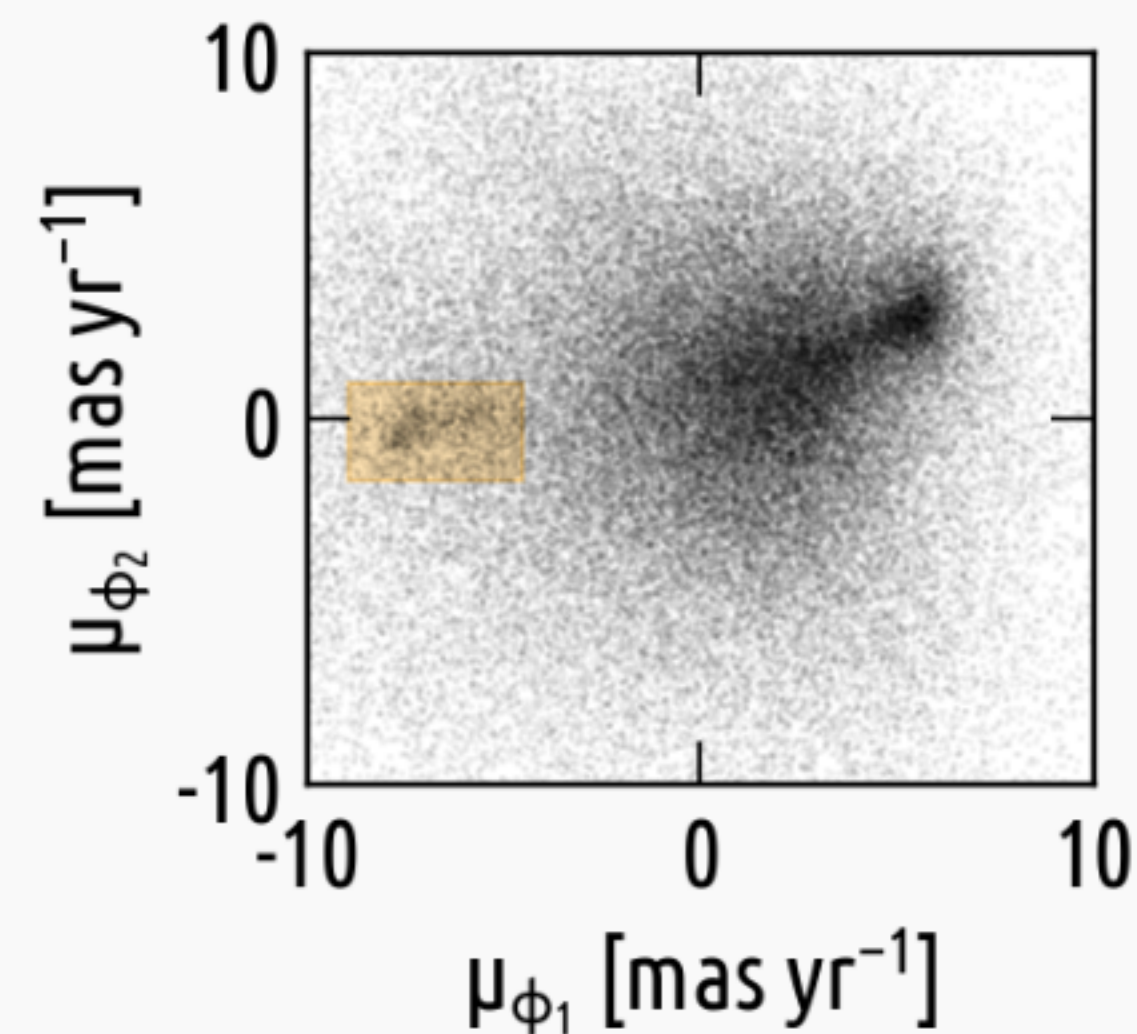
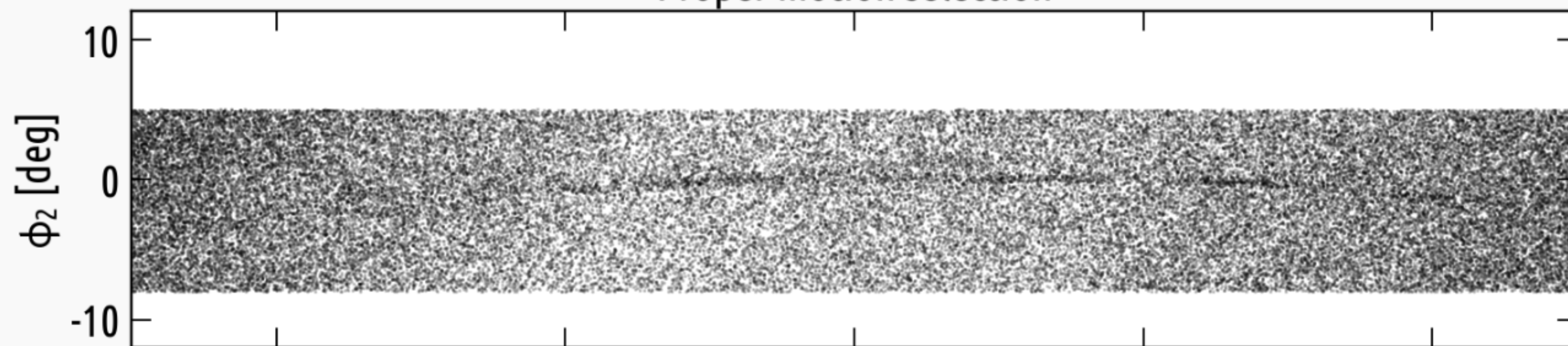




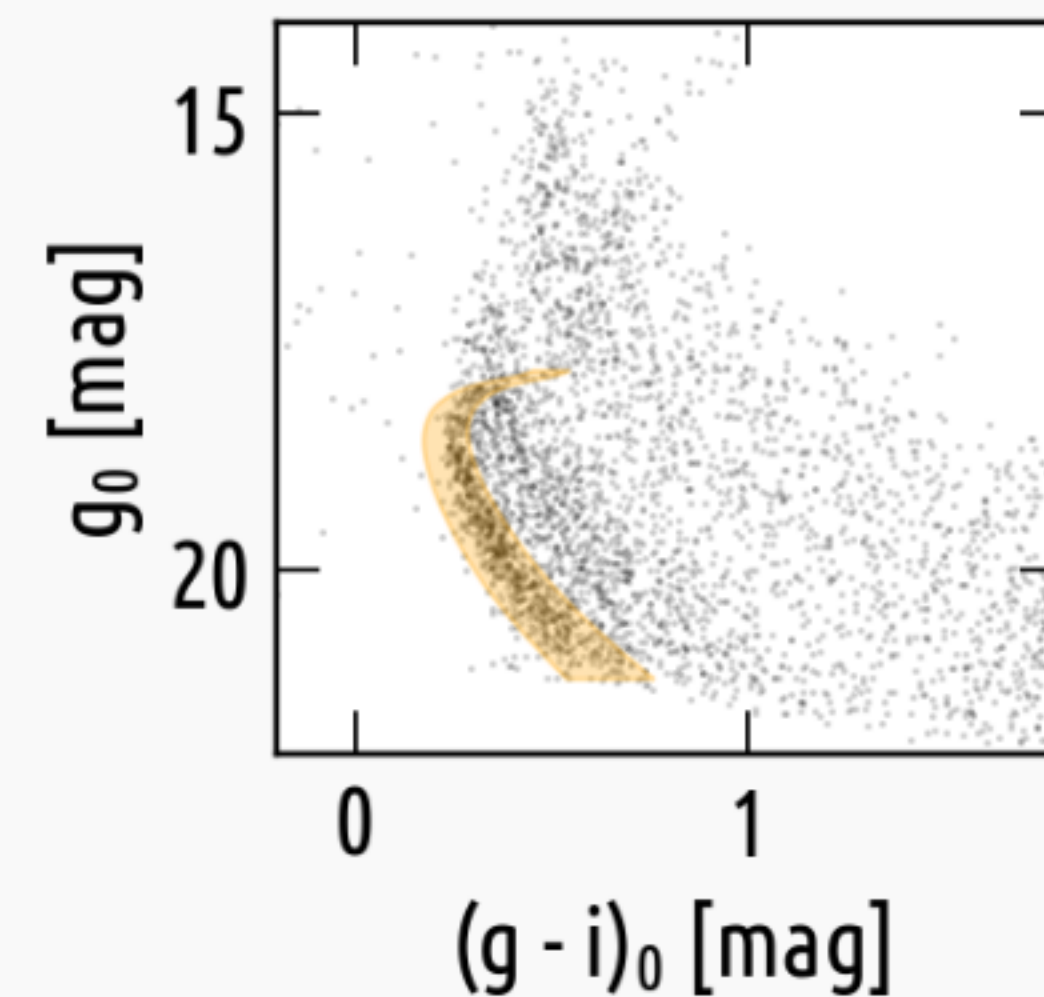
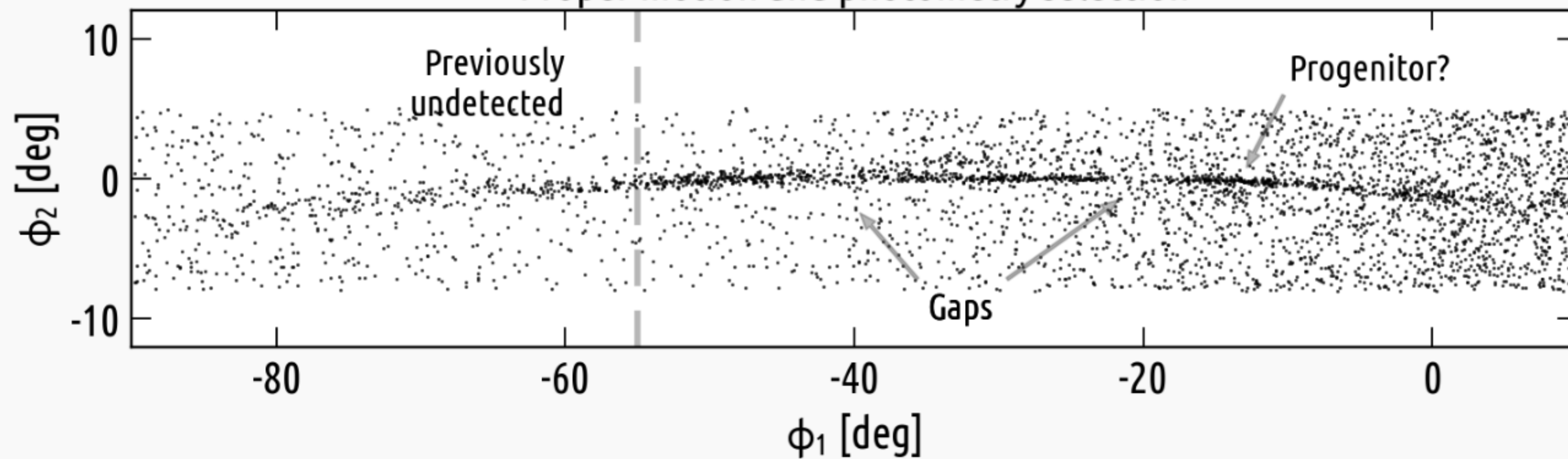
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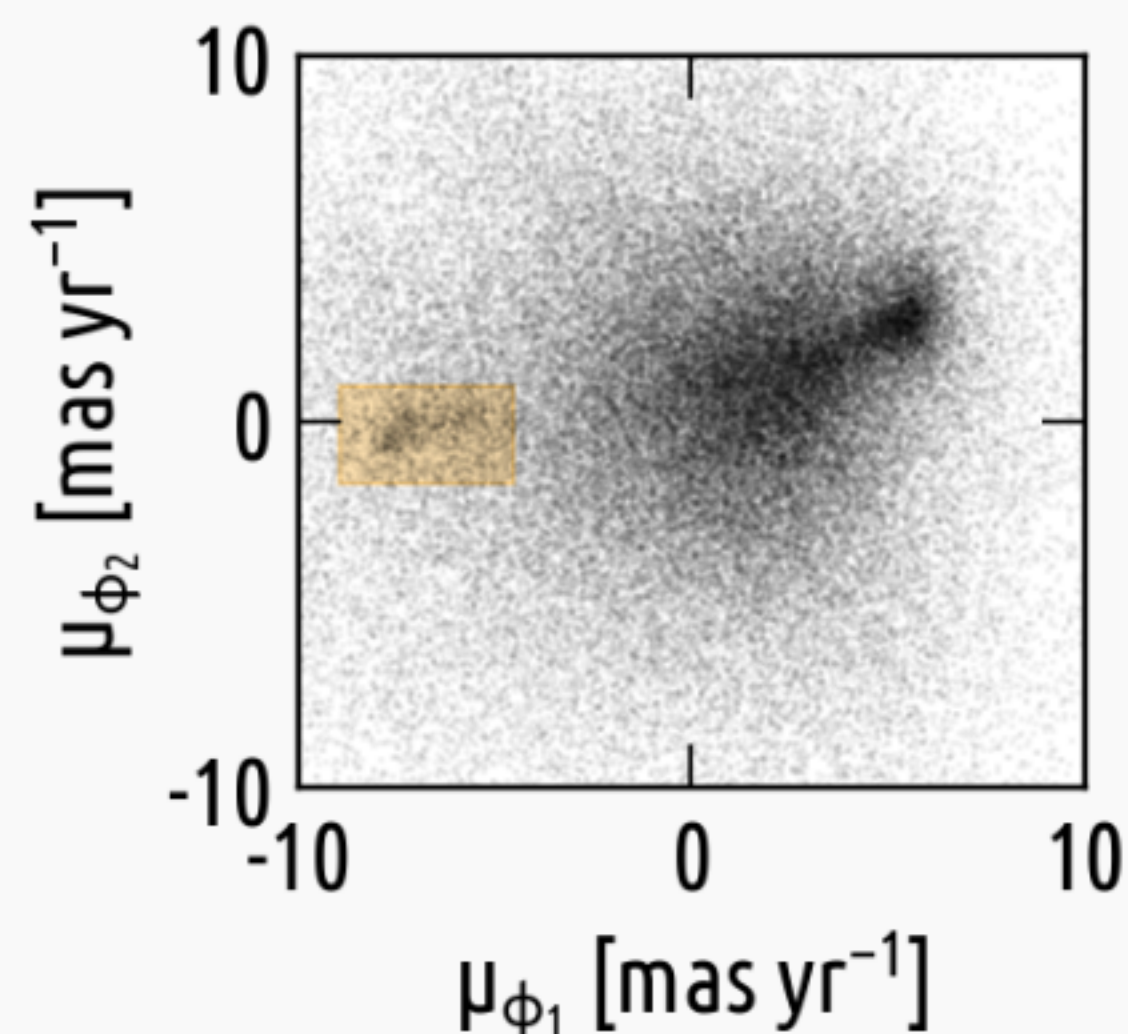
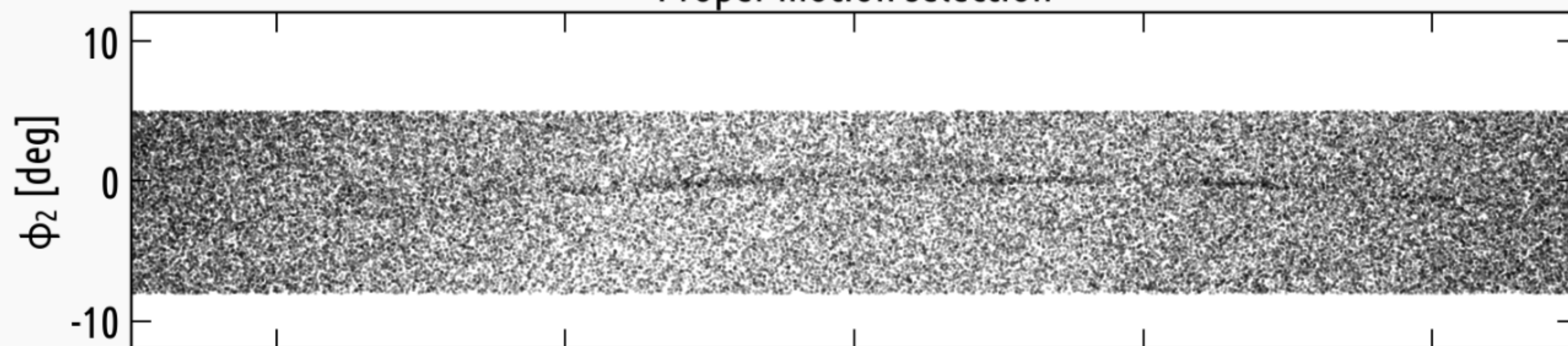




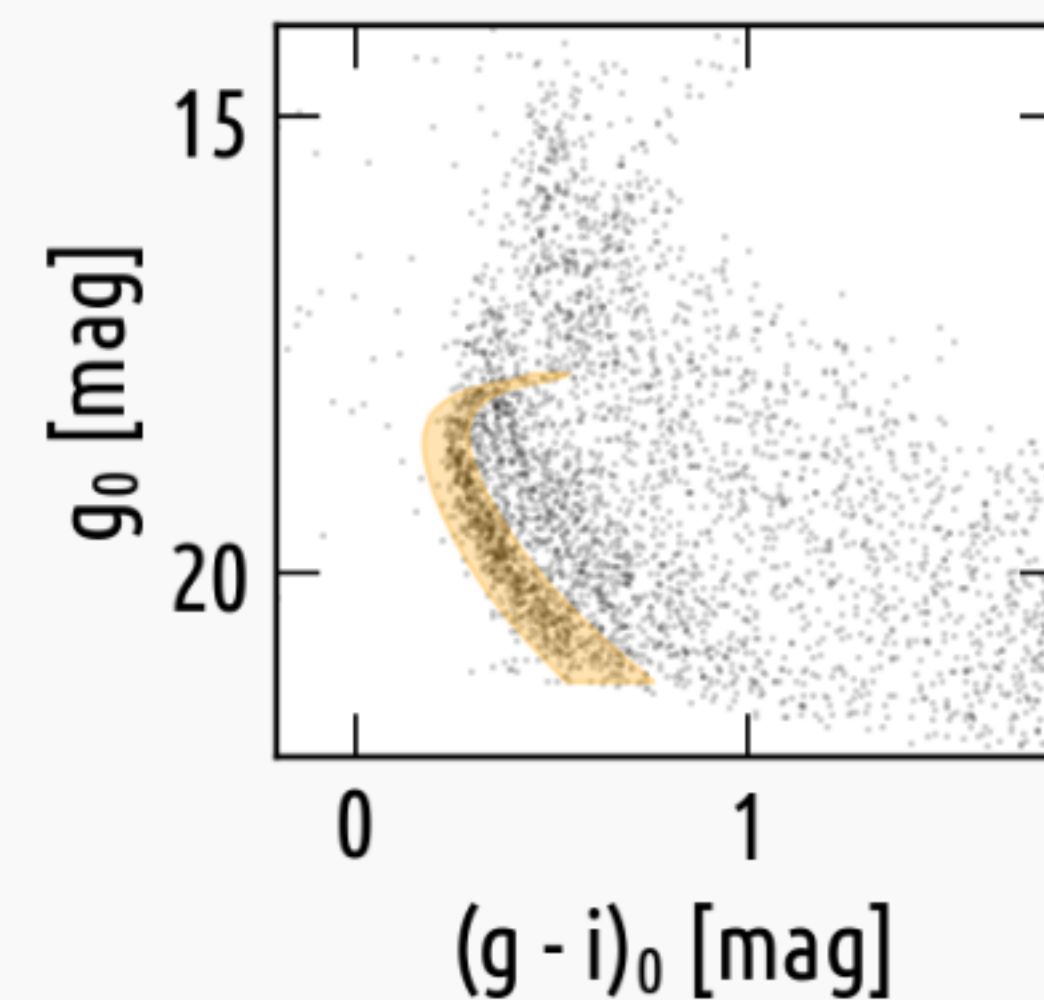
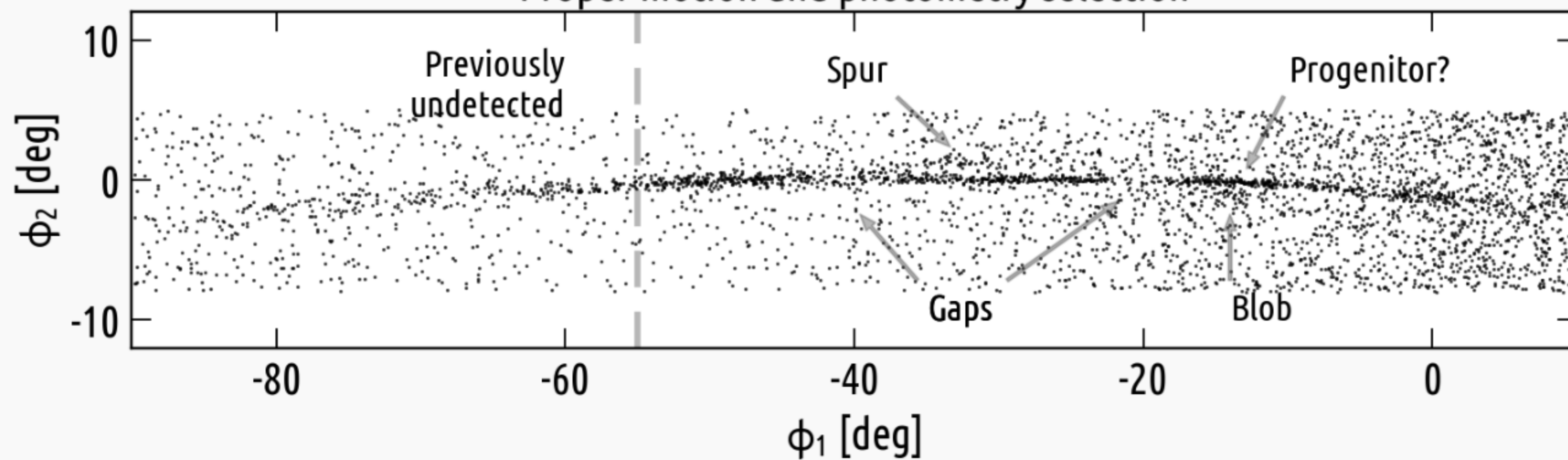
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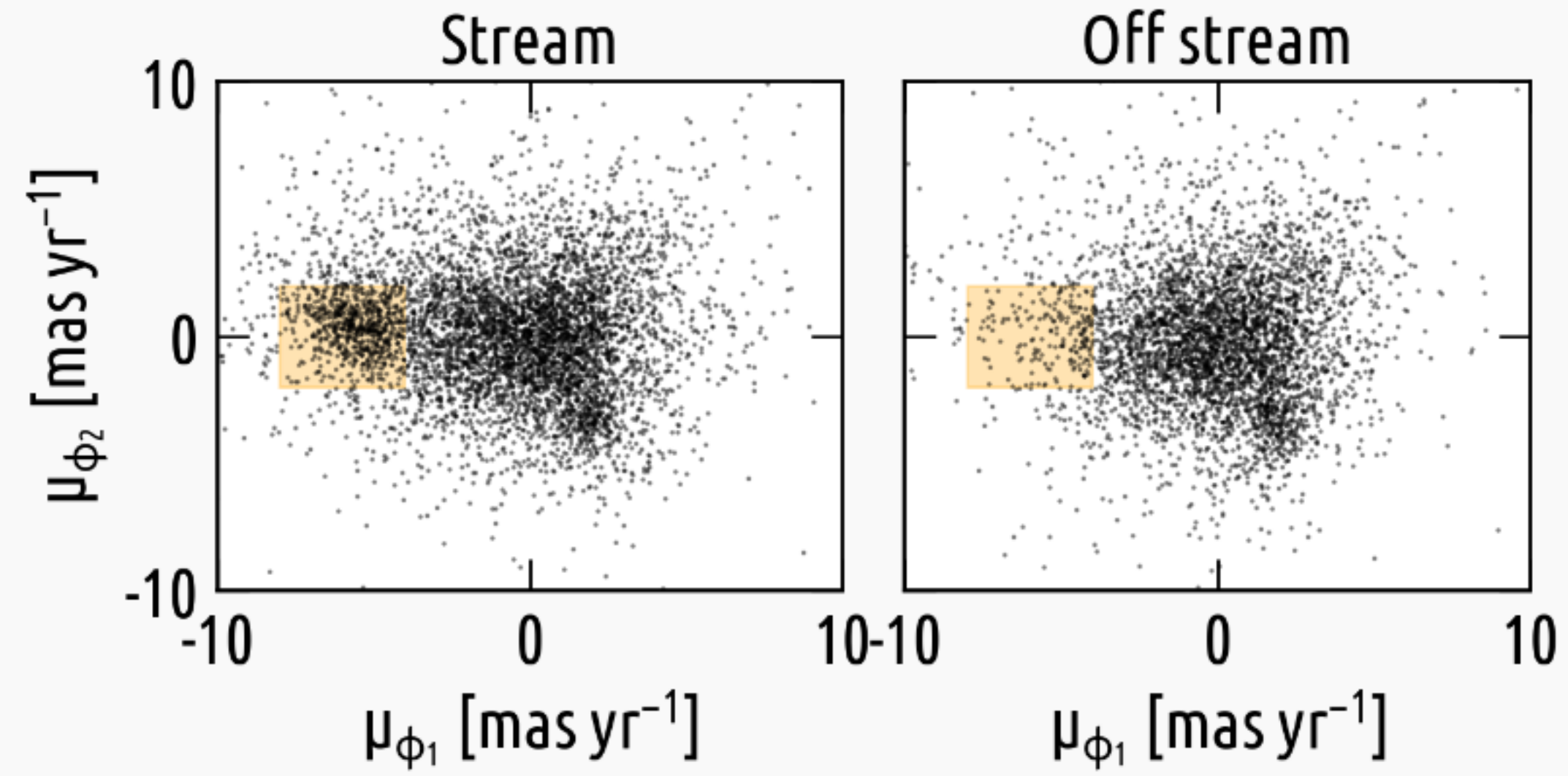
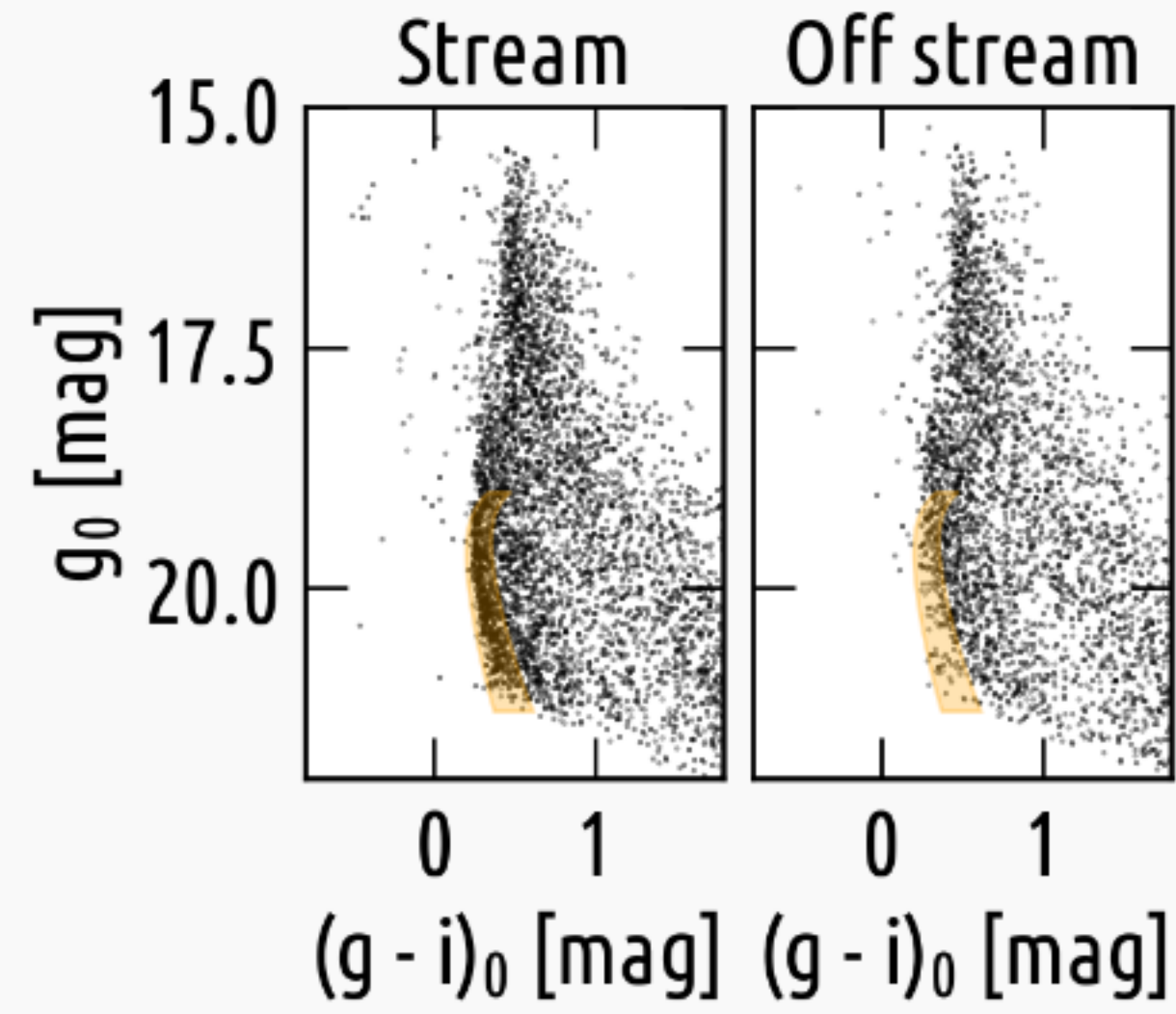


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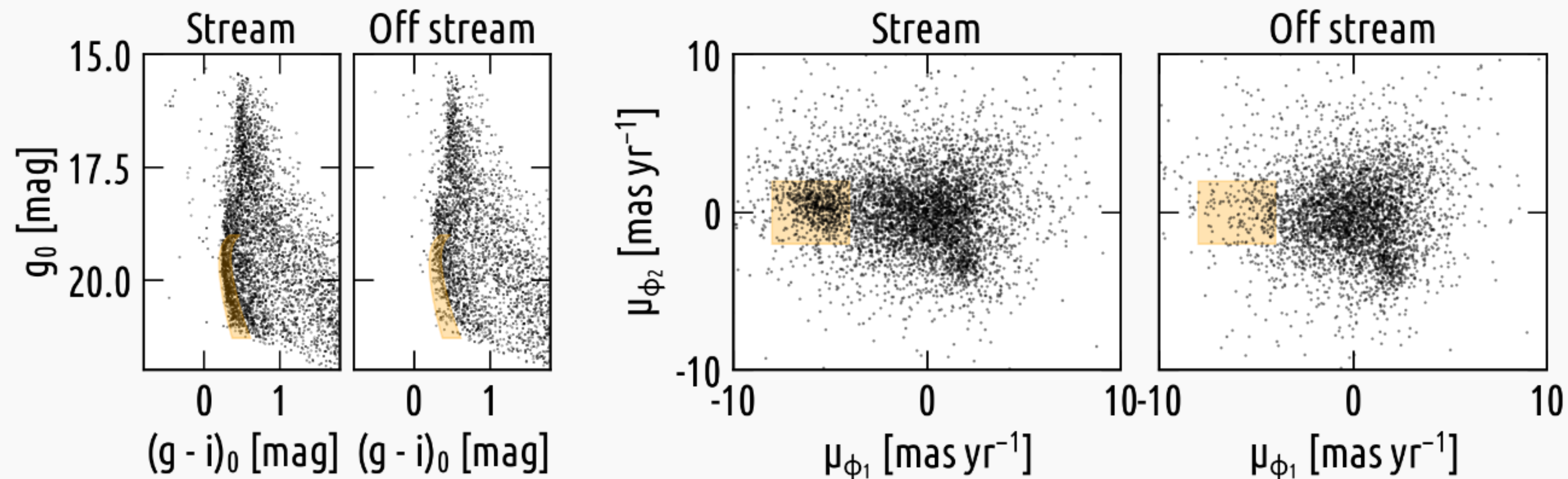


# Gaia's view of the Jhelum stellar stream

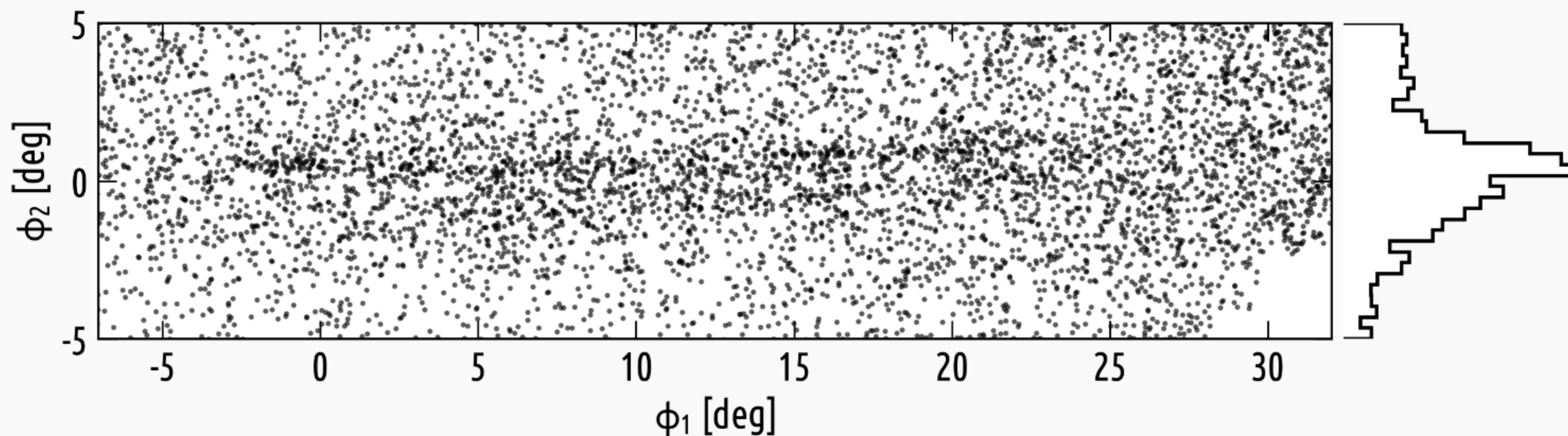




# Gaia's view of the Jhelum stellar stream: multiple components

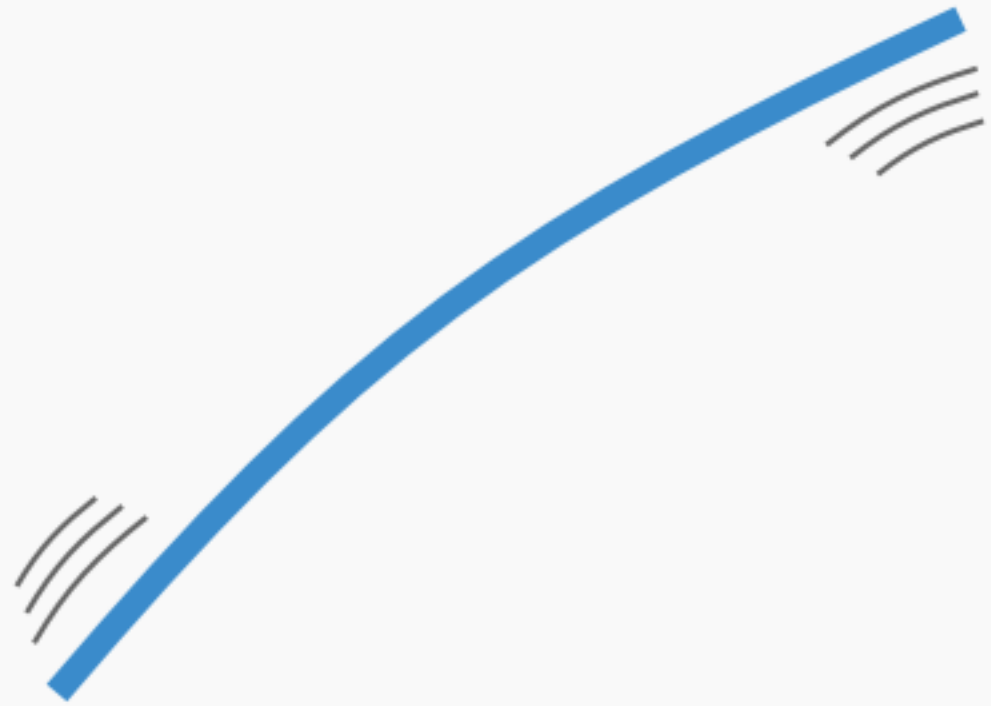


Bonaca et al. (in prep)



# What are the tidal streams providing?

Constraints on the global  
properties of matter  
distribution

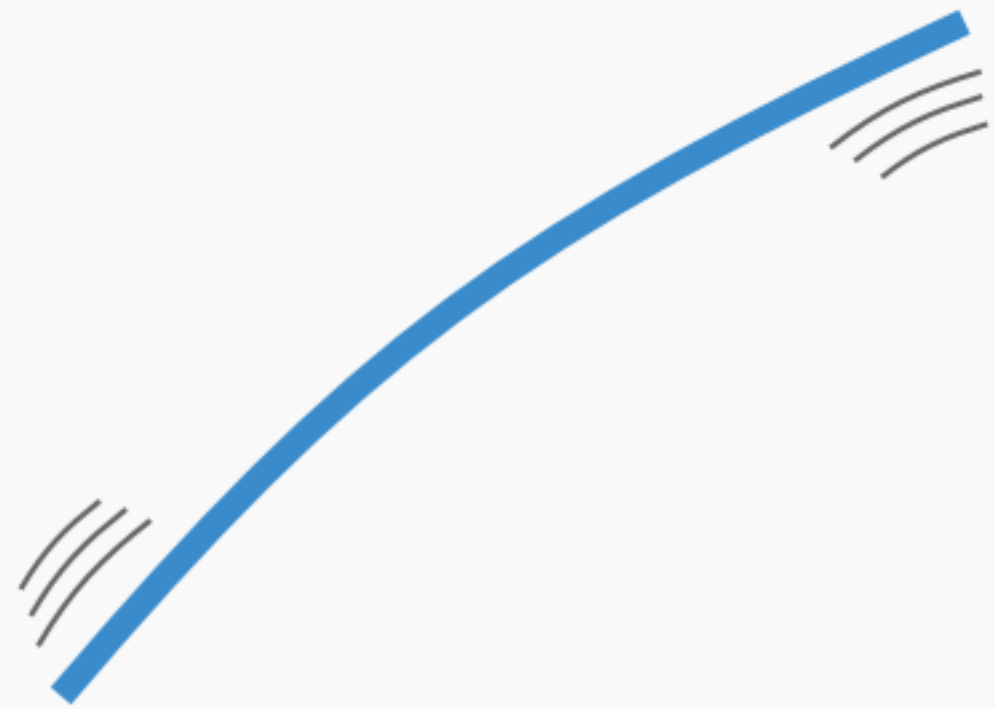


(mass enclosed inside  
present-day position,  
see Bonaca & Hogg  
arXiv:1804.06854)



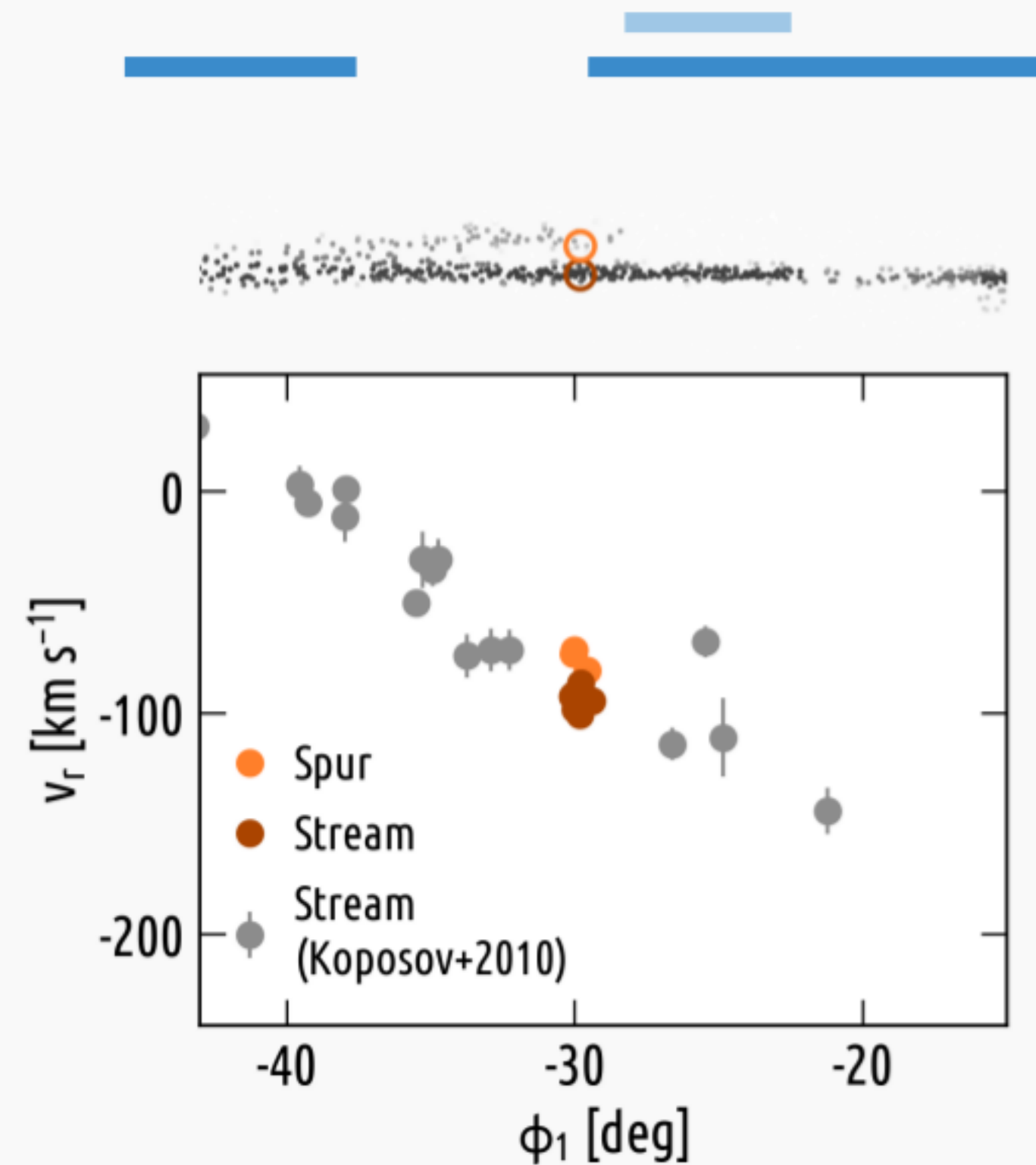
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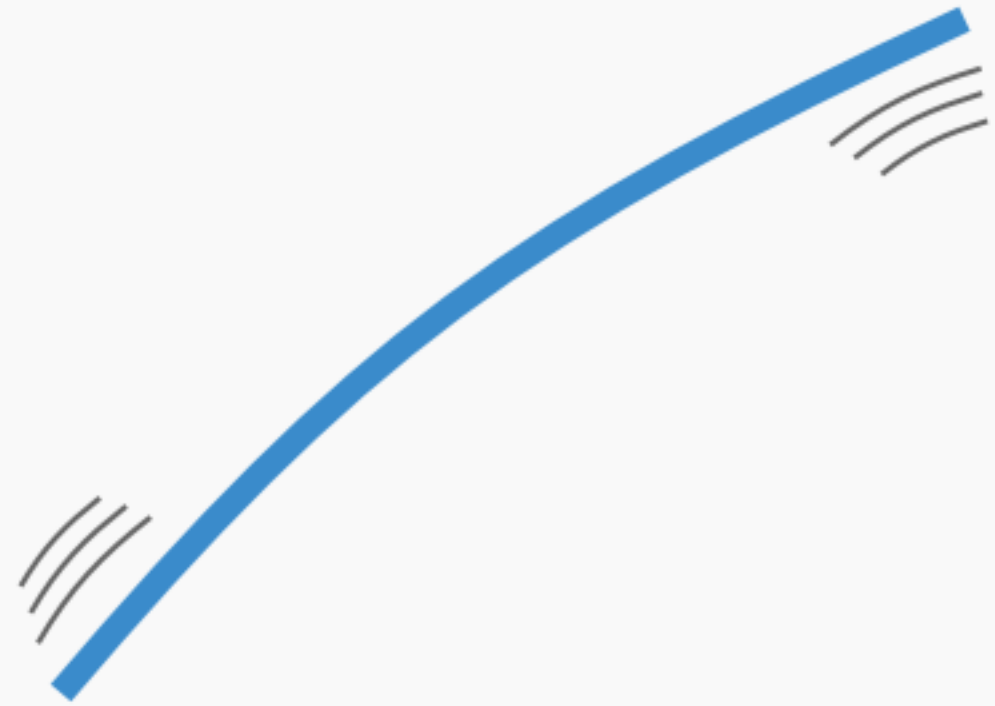
Evidence of interactions?



ongoing program with C. Conroy & N. Caldwell

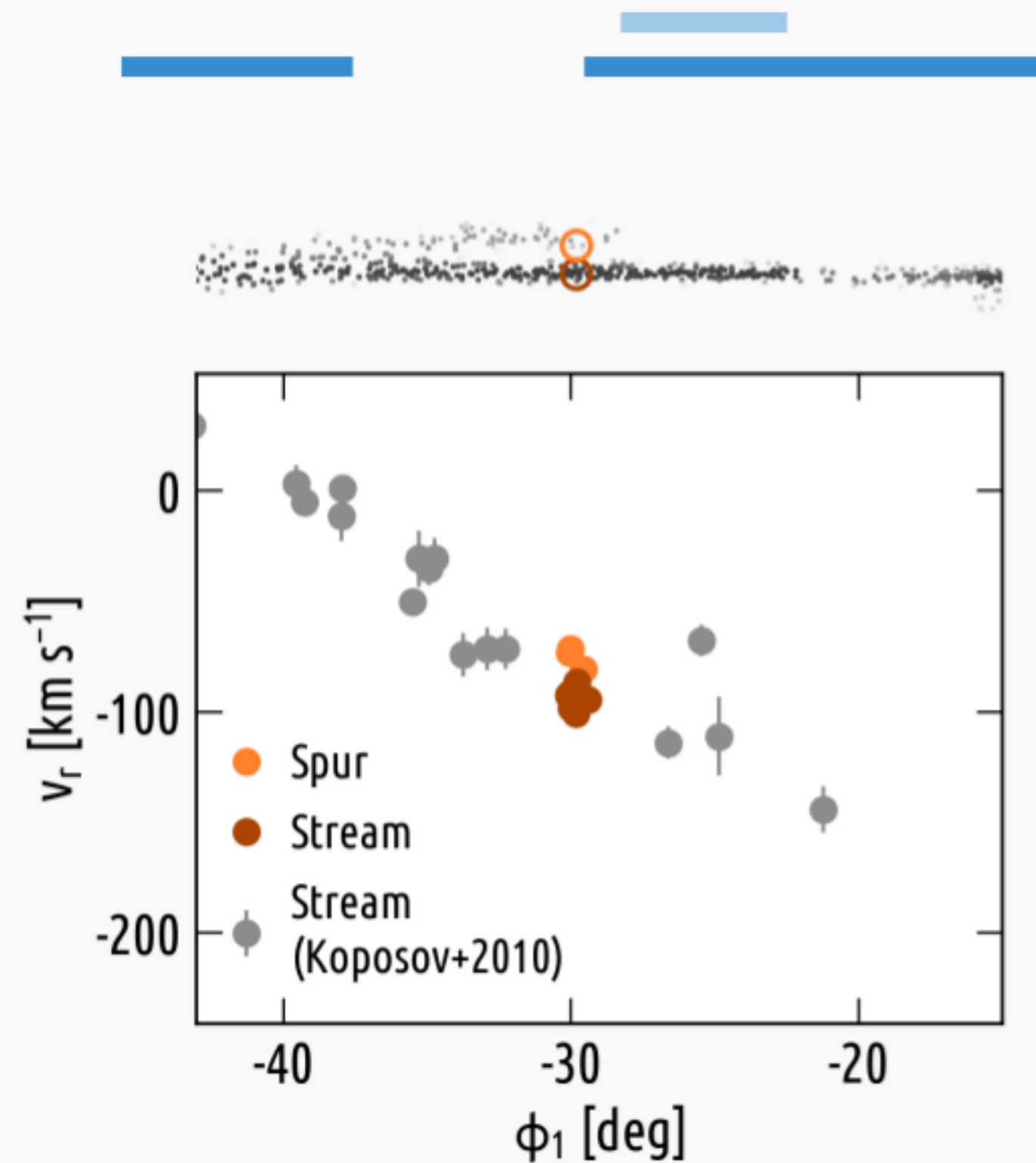
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Constraints on the global properties of matter distribution



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Evidence of interactions?



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Evidence of group infall?

Evidence of interesting dynamics?

