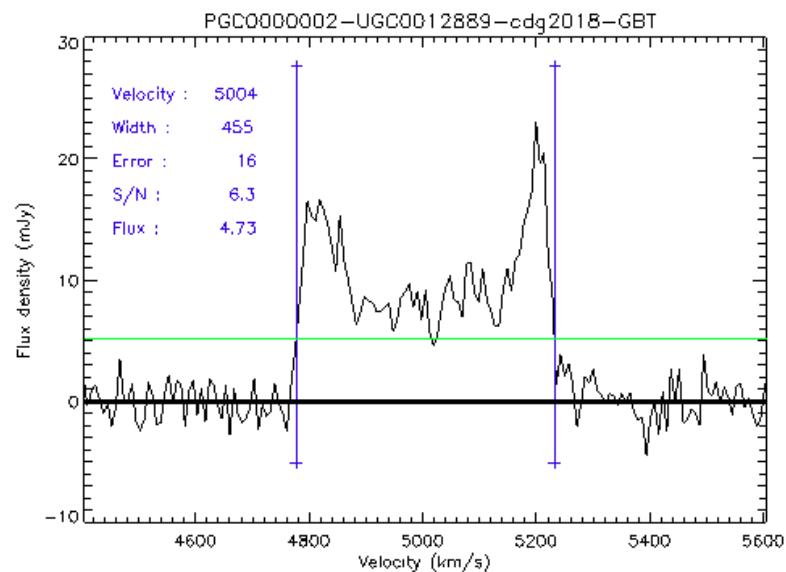


Extragalactic Hydrogen

Available profiles for PGC 2

Screenshot from first of **21,490** entries in the *All Digital HI* catalog
in the *Extragalactic Distance Database*
(<https://edd.ifa.Hawaii.edu>)

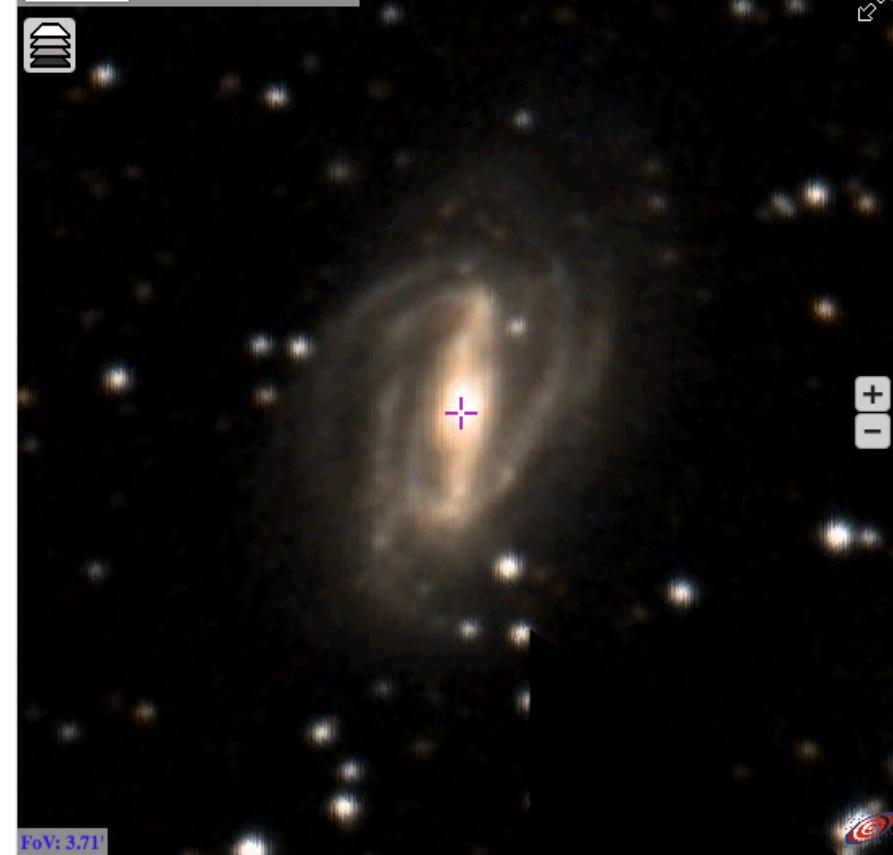


PGC Number:

Galaxy Name:

Digitized Sky Survey (DSS2) Color Image

J2000



Cosmicflows: Helene Courtois et al.

Cornell group: Martha Haynes, Riccardo Giovanelli

HI observations with single dish radiotelescopes



GBT: $\delta > -45$



Parkes: $\delta < -45$



Arecibo: $0 < \delta < 38$

Sources smaller than beam:

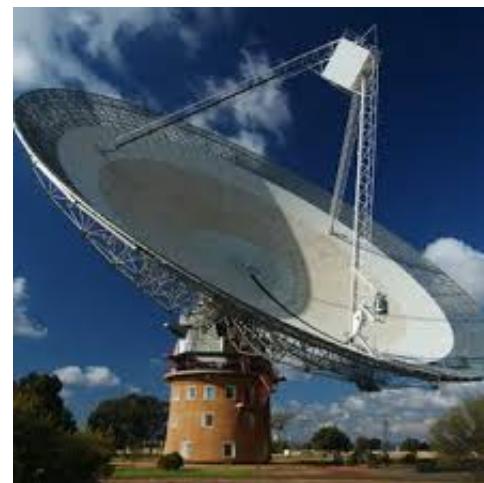
Exposure times to reach specified Signal/Noise:

$$t \sim D^4$$

HI observations with single dish radiotelescopes



GBT: $\delta > -45$



Parkes: $\delta < -45$



Arecibo: $0 < \delta < 38$



FAST: $-14 < \delta < 65$ ($-1 < \delta < 52$)

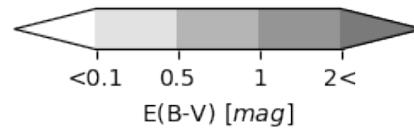
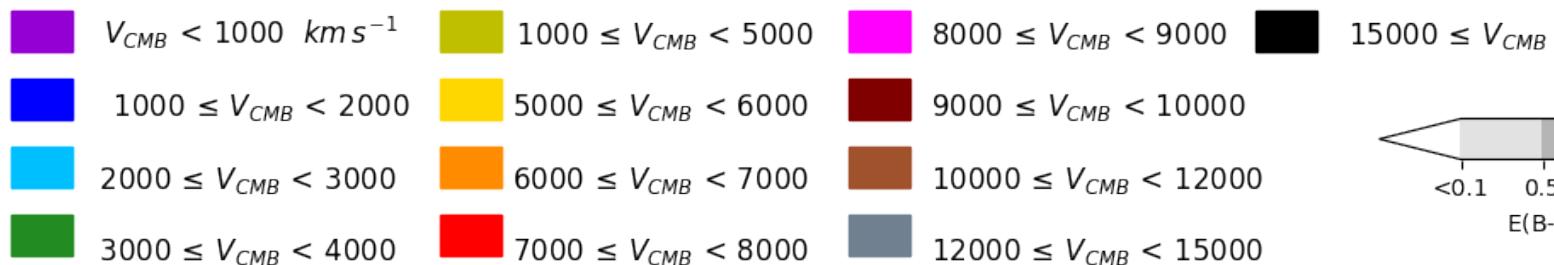
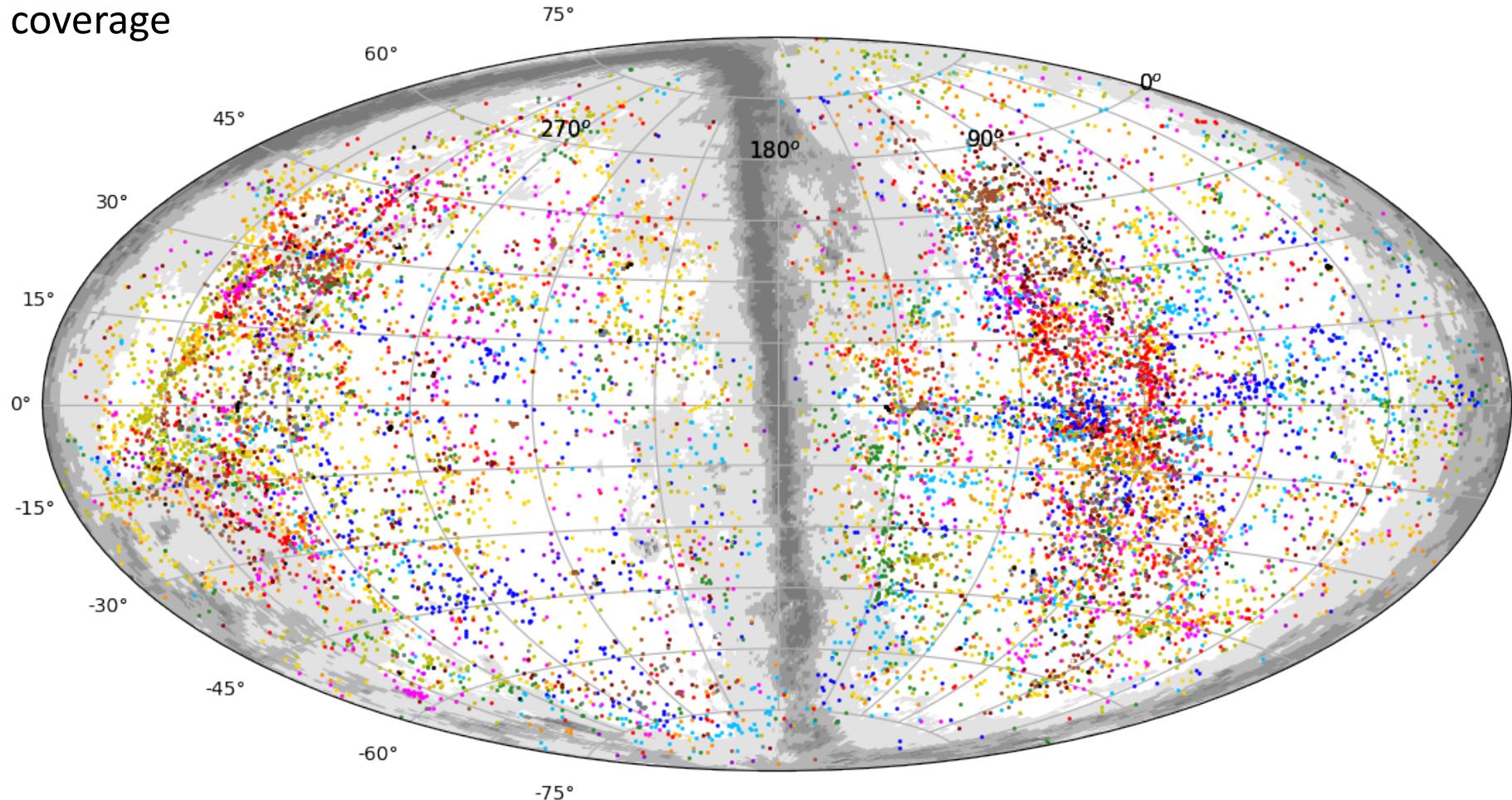
Sources smaller than beam:

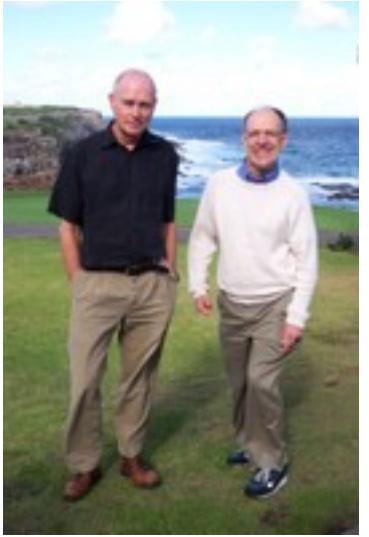
Exposure times to reach specified Signal/Noise:

$$t \sim D^4$$

Supergalactic Aitoff Projection (TF samples)

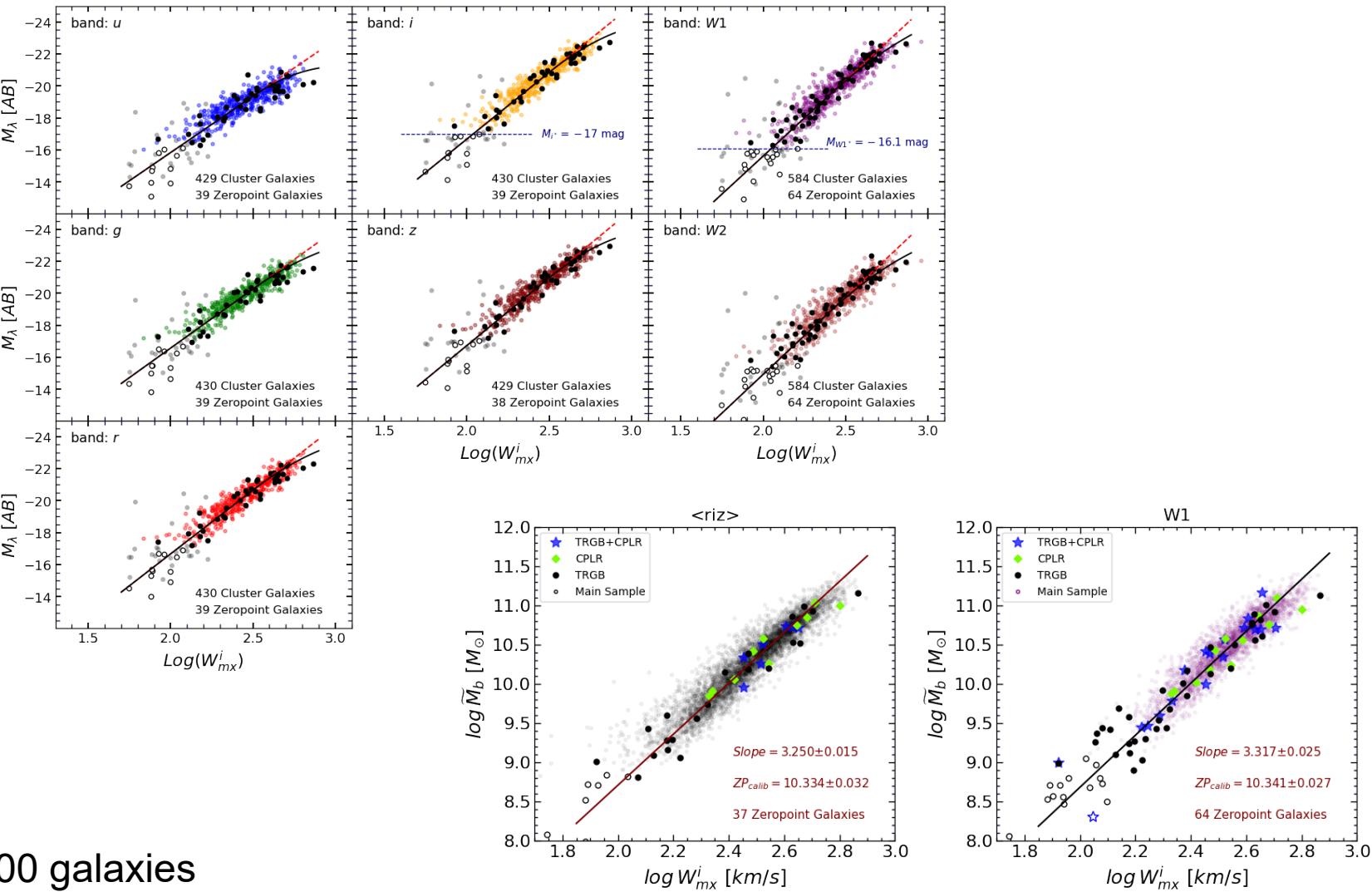
Current sky coverage





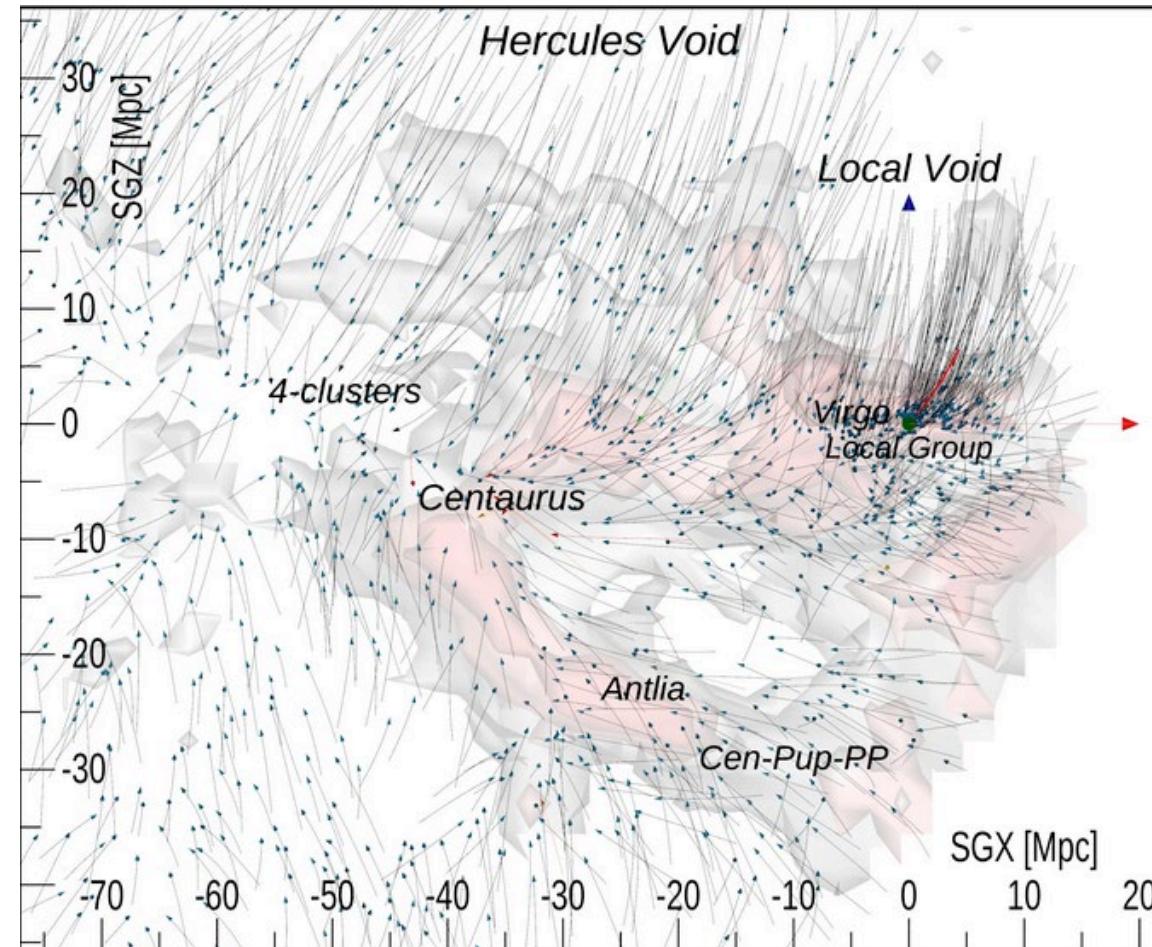
Tully & Fisher

Luminosity – Linewidth Relation



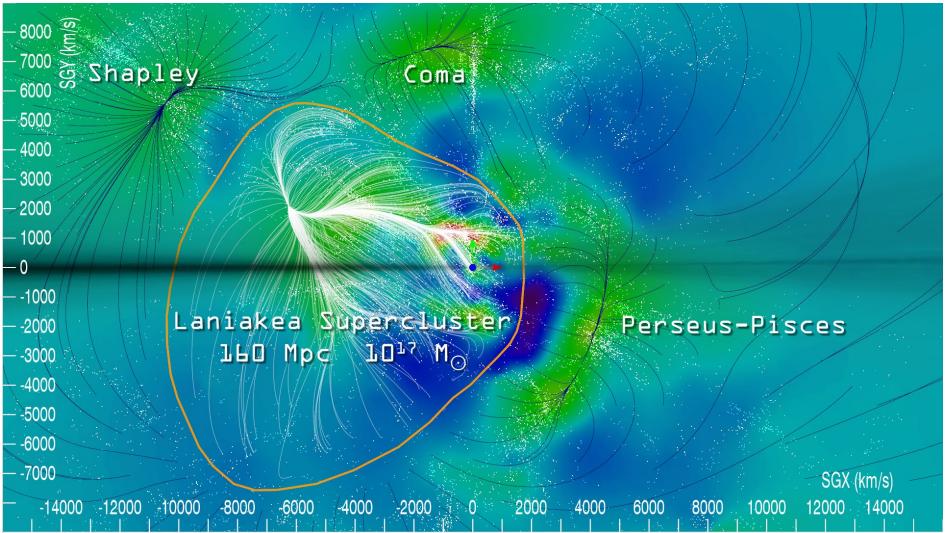
Galaxy flows

$$V_{pec} = V_{obs} - H_0 d$$

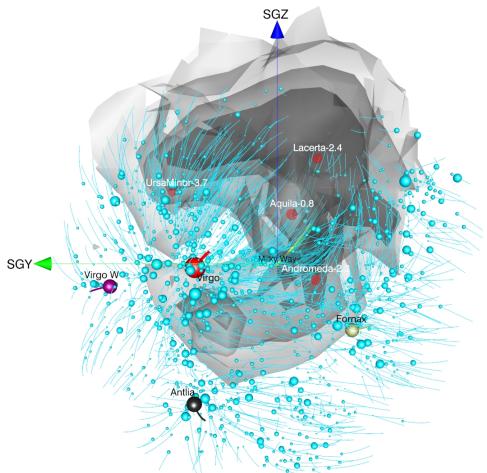


Numerical action orbit reconstructions
Ed Shaya et al. 2021

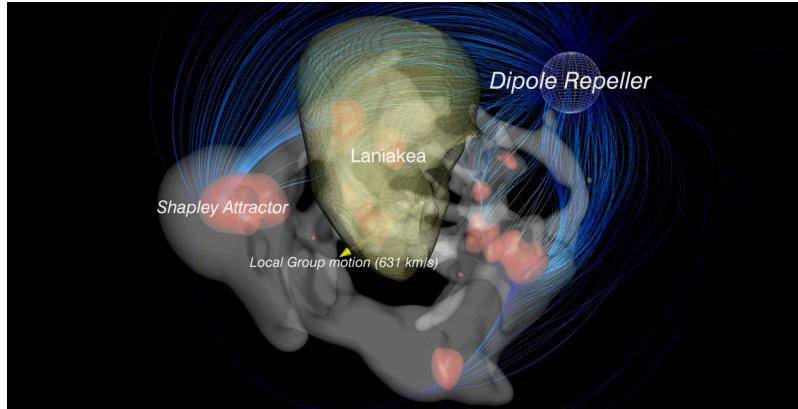
Large scale structure



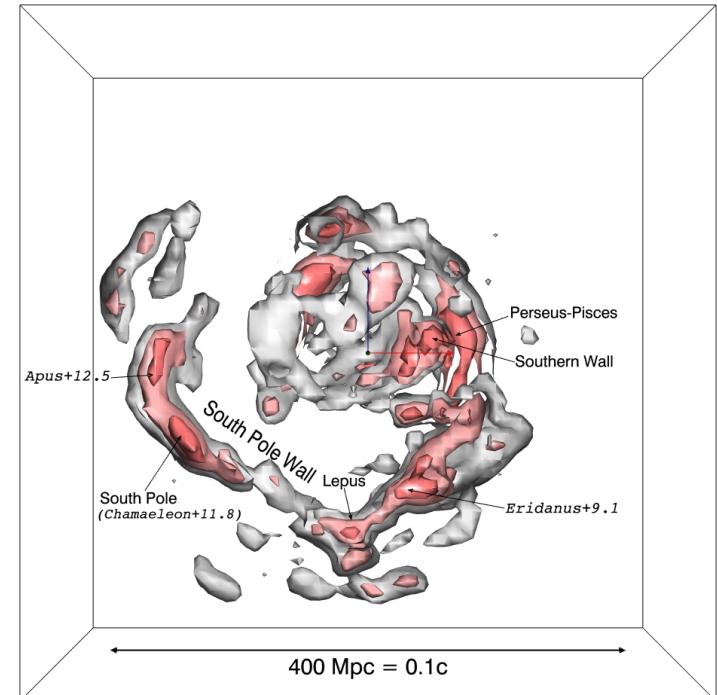
Laniakea: Brent Tully et al. 2014



Local Void: Brent Tully et al. 2019



Dipole repeller: Yehuda Hoffman et al. 2018



South Pole Wall: Daniel Pomarede et al. 2020

Large scale structure

