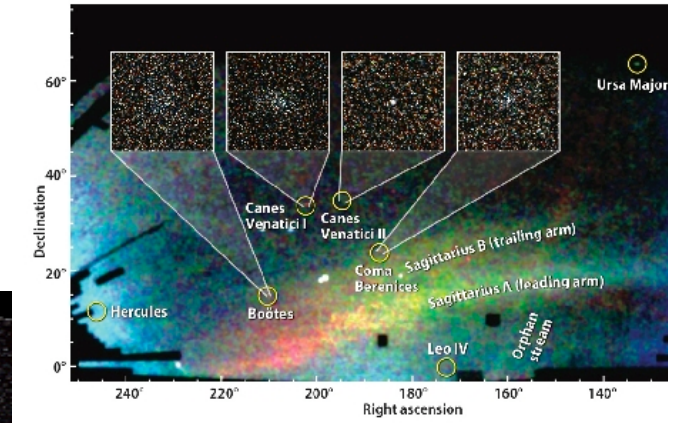
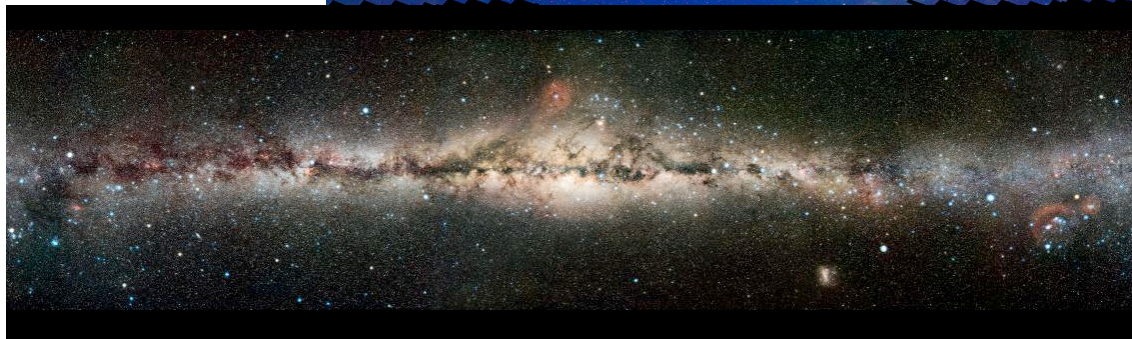
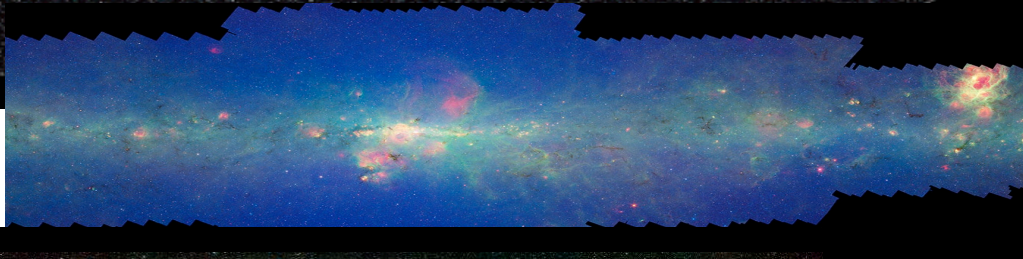
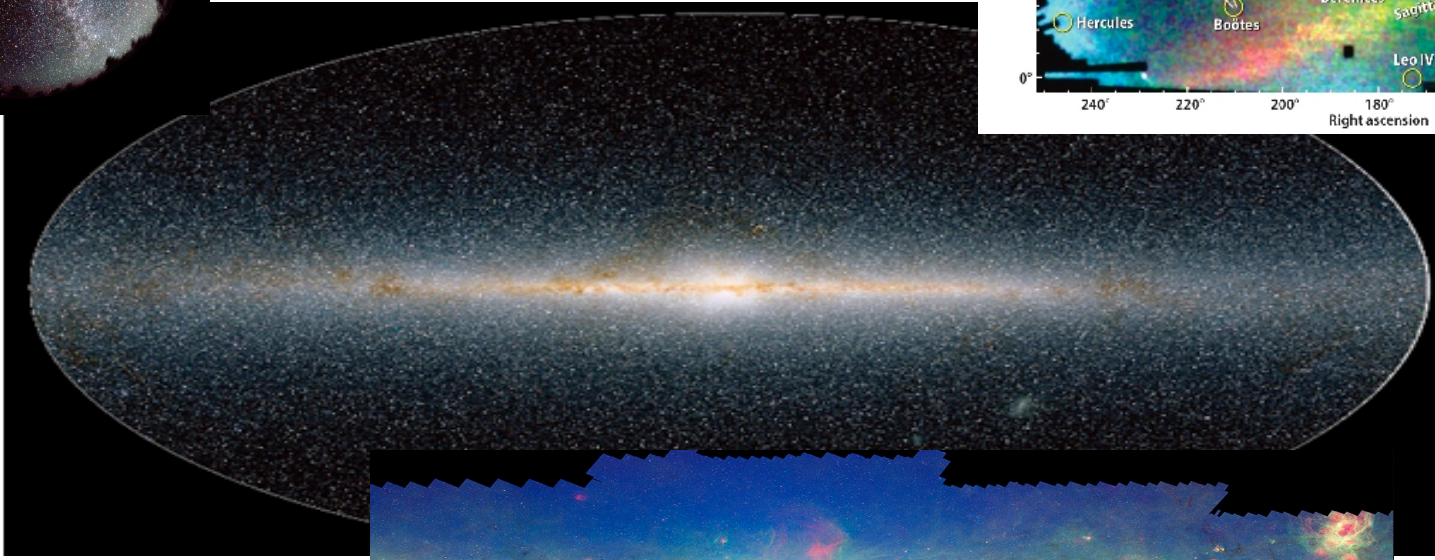
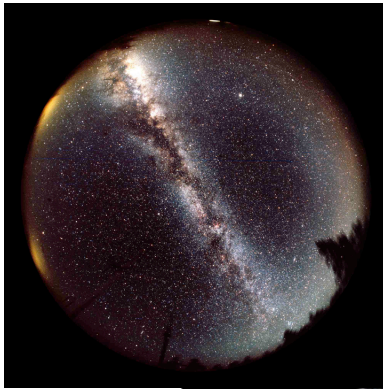


**(Questions about) Possibilities
for Galactic Structure and
Local Group Galaxies with
SASIR**

The Galaxy



Galactic Structure

- The MW is a Barred Galaxy
- It also has a non-spherical Bulge
- Structure
- Origin Bar/Bulge? Chemical Enrichment
- Relative Kinematics?
- How long lived is the Bar?
- Is the Inner disk truncated?

Galactic Structure

- SASIR Deeper than 2MASS, UKIDSS
- What about GLIMPSE? Different Spectral Region
- RRLyra: Dust, Metallicity effects Free
- Suited for MW 3D Mapping for Galactic Plane studies, Bulge/Bar. Advantage where extinction is high but also traces a numerous low mass stellar component through the galaxy. Distances?
- Color-Color allow dereddening method then estimation of distances

Inner MW Kinematics

- Requires Stellar Spectroscopy (NIR)
- Is the Bulge/Bar Pattern speed the same? Secular Bulge ...?
- Chemical Distribution along the Bulge/Bar: Assembling?

Maybe a Second NIR Spectroscopy Phase or Follow up in Selected Fields

- Possibility for Selecting Bulge Stars for IR spectroscopy
- fainter stars than the 2MASS based selection to be used by SDSSIII
- Metallicity distribution, enrichment.
Detailed Kinematics
- Bulge/Bar origin-structure
- Bulger/Bar assembling,

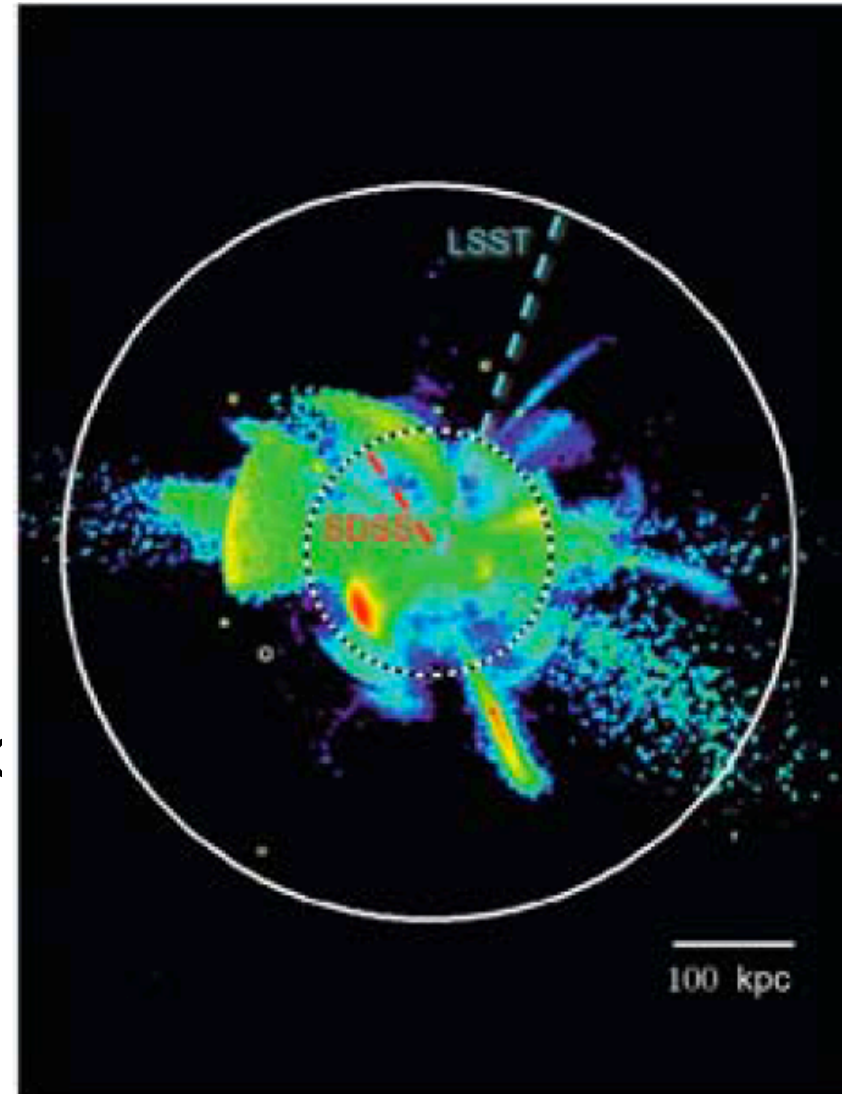
Bulge Microlensing?

- Allows relative weight Bulge/Bar based on the distribution of times for microlensing events.
- The frequency of the SASIR survey is more suited for the long duration events based on previous data from Macho collaboration (Bissantz et al 2004) Events in the scale of 10 days have been detected long duration ~100 days.

LSST/Pan-STARRS Synergy

- Combine Optical photometry for:
- Photometry Redshifts: Disk/Bulge/Bars from $z=1$ to $z=0$
- Stellar Chemistry in the LG?
- Alternatively Is it possible to have an optical Band?

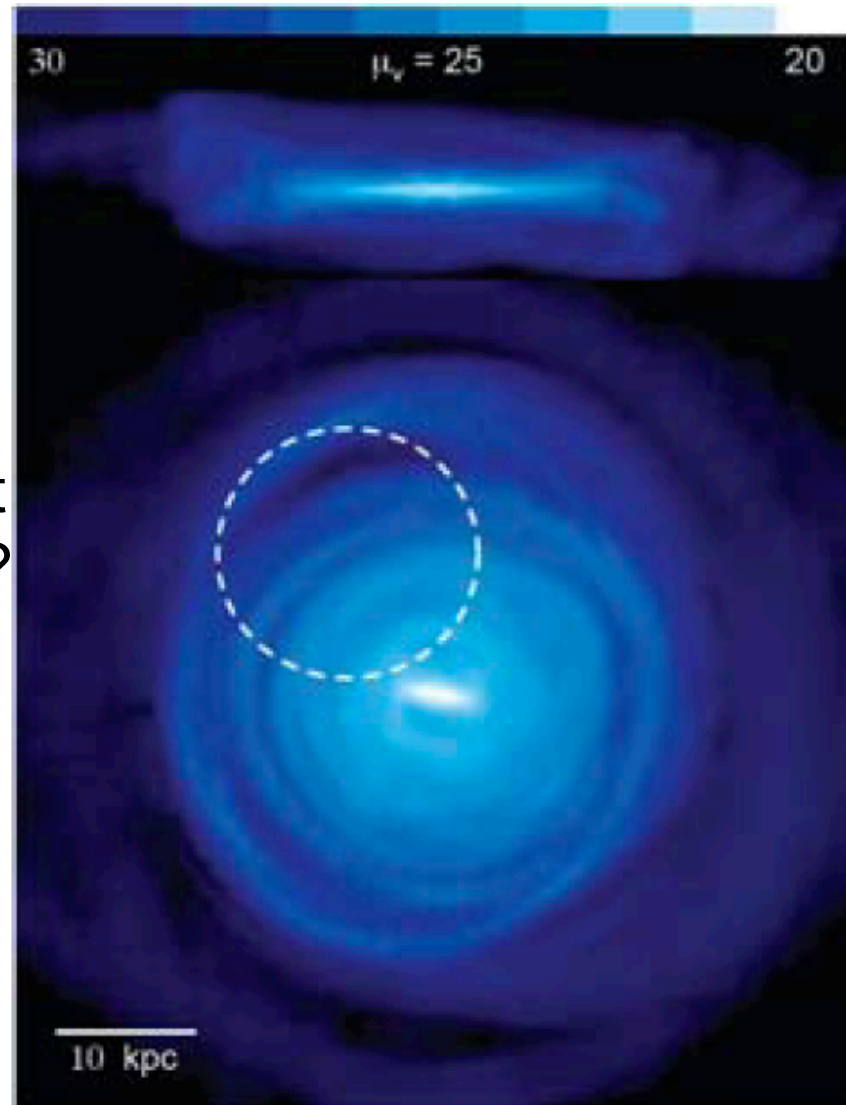
- Stellar Halo at the MW tidal Radius it is the result of destruction Of several dwarf Galaxies, can we detect This structures?
RR Lyrae?
Chemistry-Colors?



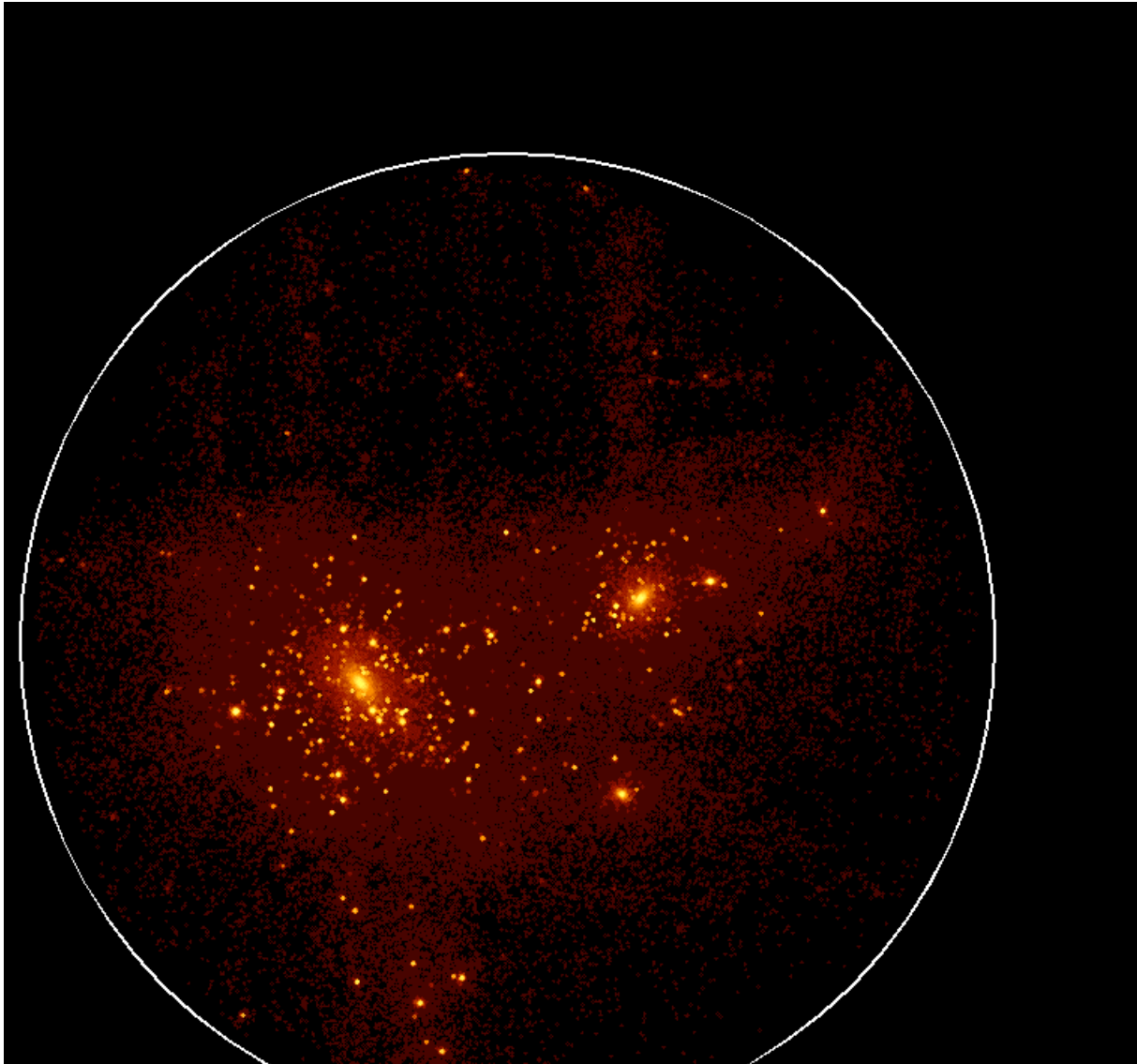
Can we do a similar study in M31/M33?

Disk structure : Flaring,
Rings, Possible evidence
For hierarchical assembling
Until which distance can we get
Proper motions then distances?

Circle is 10 kpc

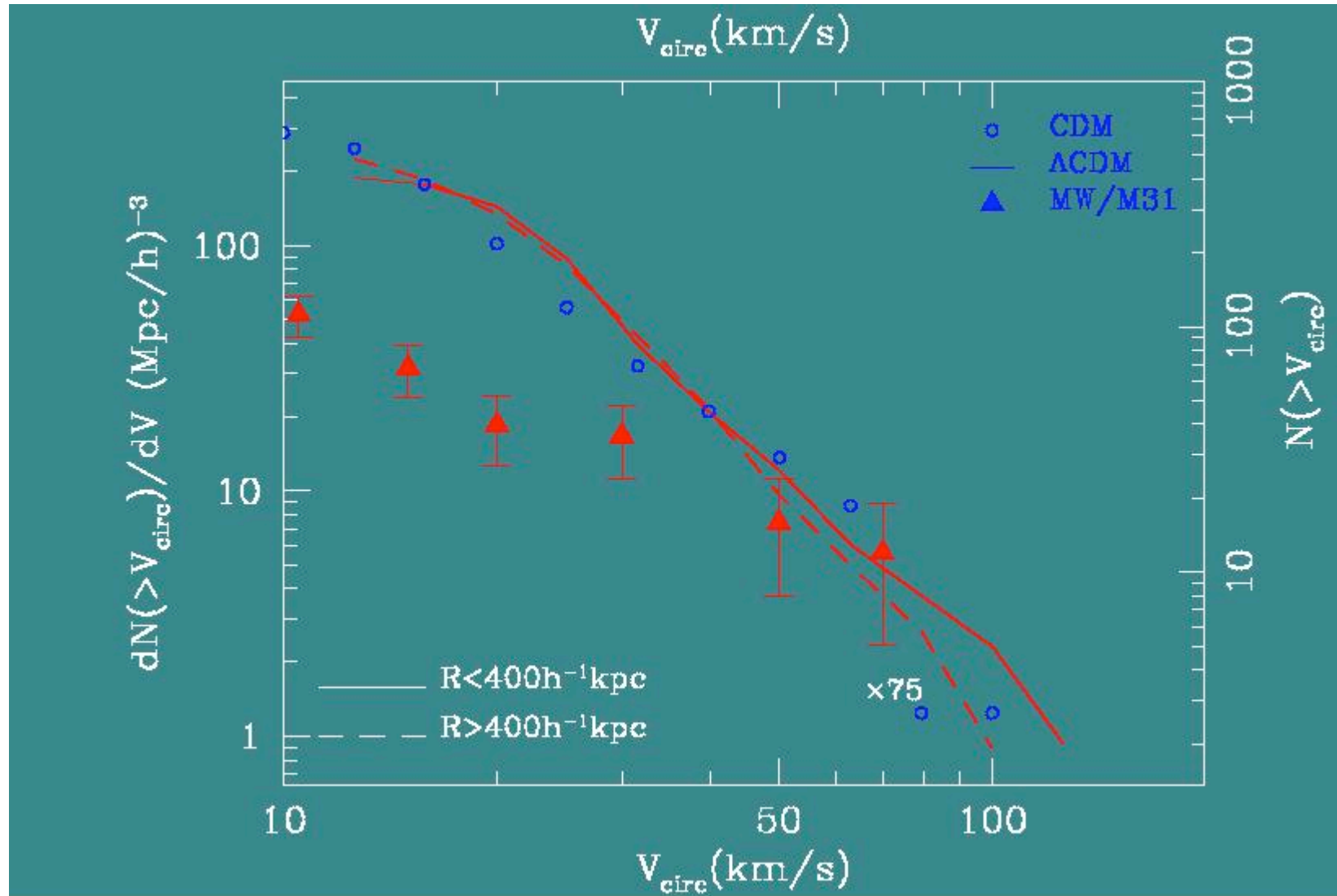


substructure of DM halo

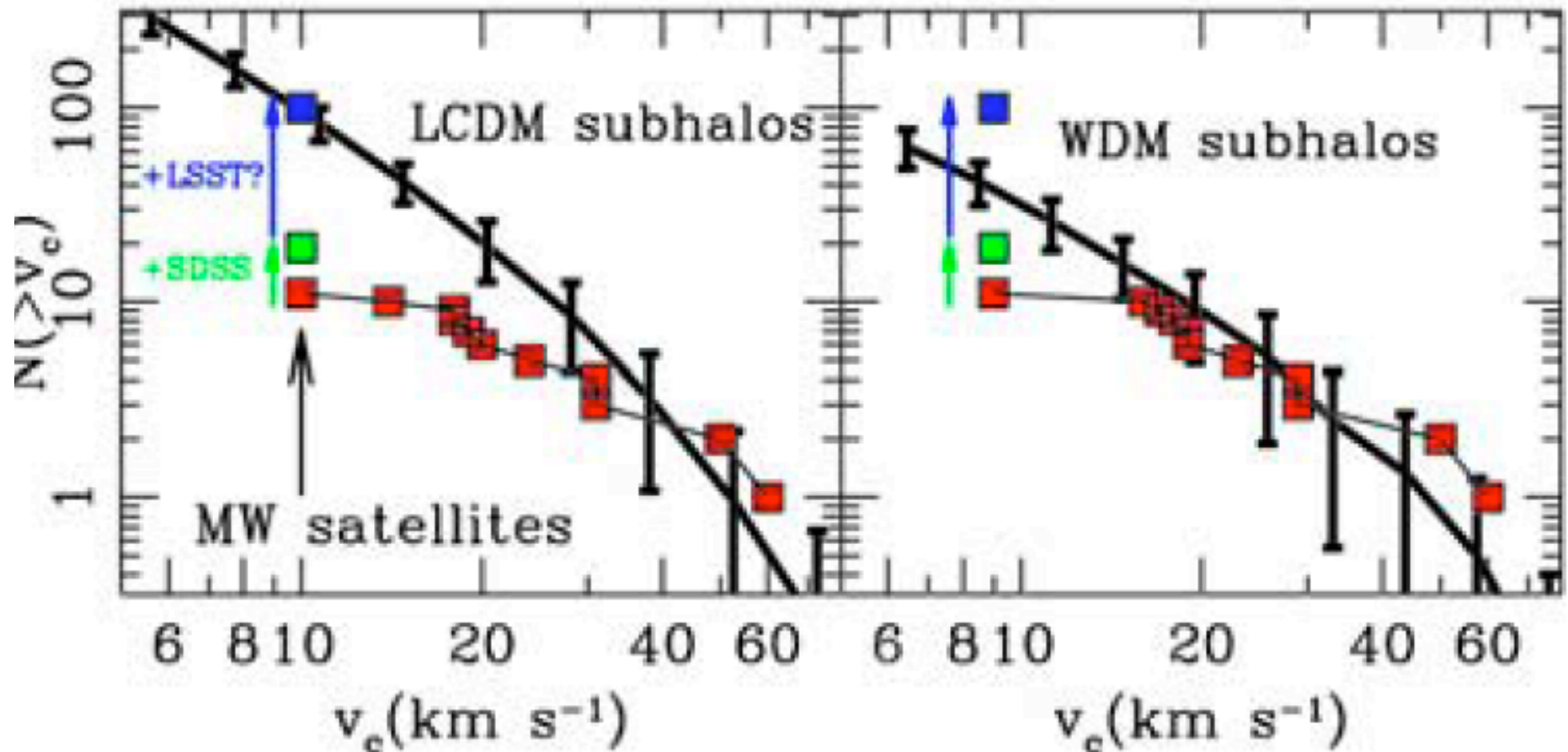


satellites?

Klypin et al 1999



Properties of Dark Matter and Faint Galaxies In the Local Group: Bullock 2008



How many more ultrafaint dwarfs can we expect?
Strategy to find them in NIR?

- The large area and sensitivity in NIR is well suited for studies mainly in the inner MW and in the disk plane.
- For other studies we need to define efficient strategies for differentiating stellar populations, chemistry, in that case we can contribute to a detailed map of the MW