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# Searching for Substructure in Fornax Deep Survey (FDS) Dwarf Galaxies

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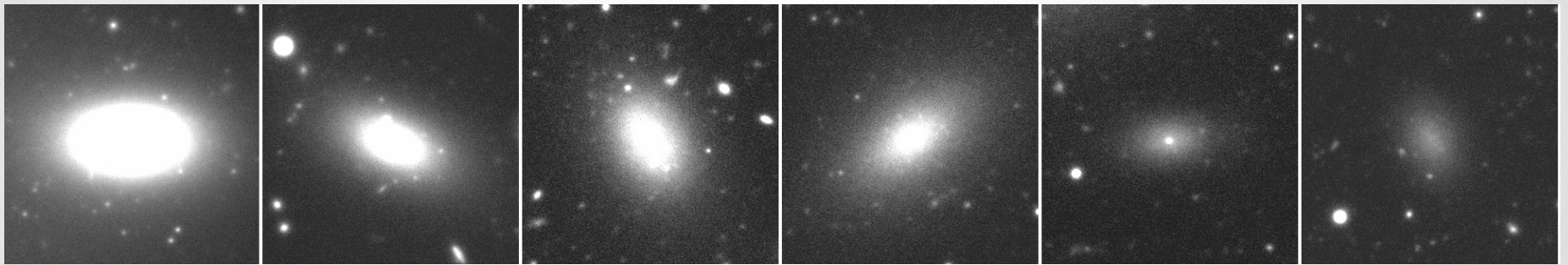
Supervisor: Dr. Thorsten Lisker

## Presence of disk substructure in dwarfs

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### Sample:

- Dwarf galaxies (dE/dS0) from FCC (Ferguson 1989).
- 154 dwarf galaxies with *gri* imaging in FDS (Venhola et al. 2017).



*FDS gri coadds*

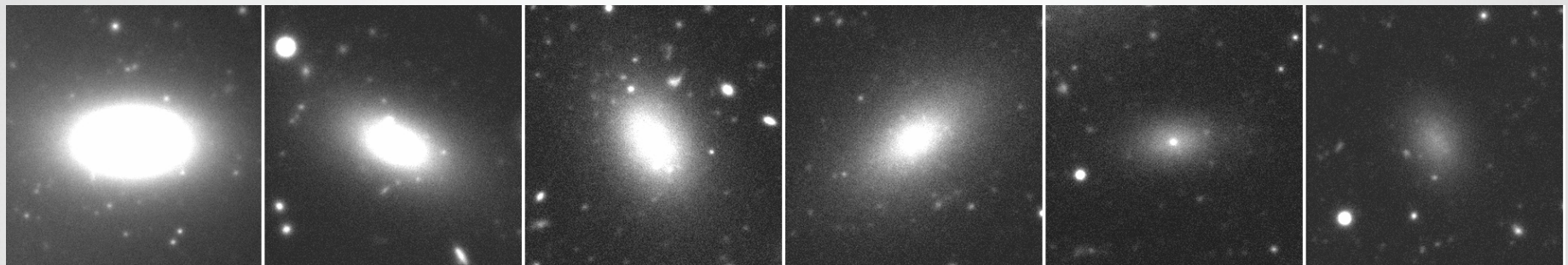


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## Procedure:

- Build *gri* coadded image cutouts of targets,
- Detect and mask interlopers using Source Extractor (Bertin & Arnouts 1996),
- Measure ellipticity and PA using IRAF Ellipse and build galaxy model,
- Build **residual image** and **unsharp mask images** to analyse.

coadded - model

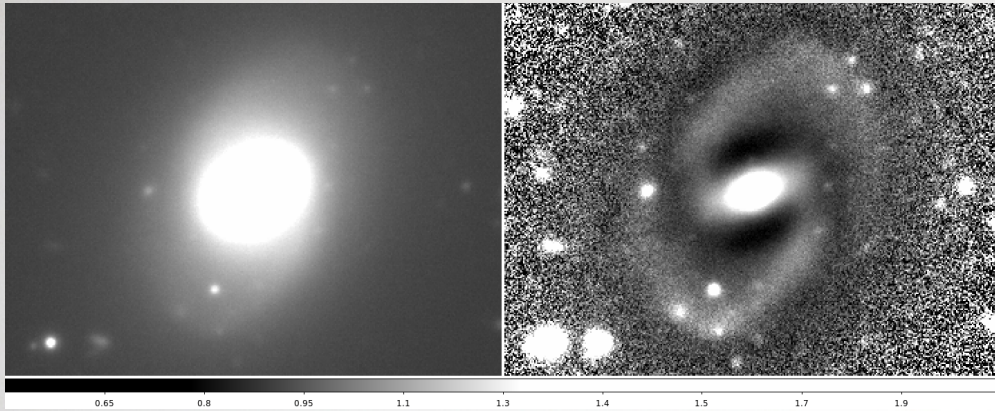
coadded / smoothed  
with elliptical Gaussian kernels



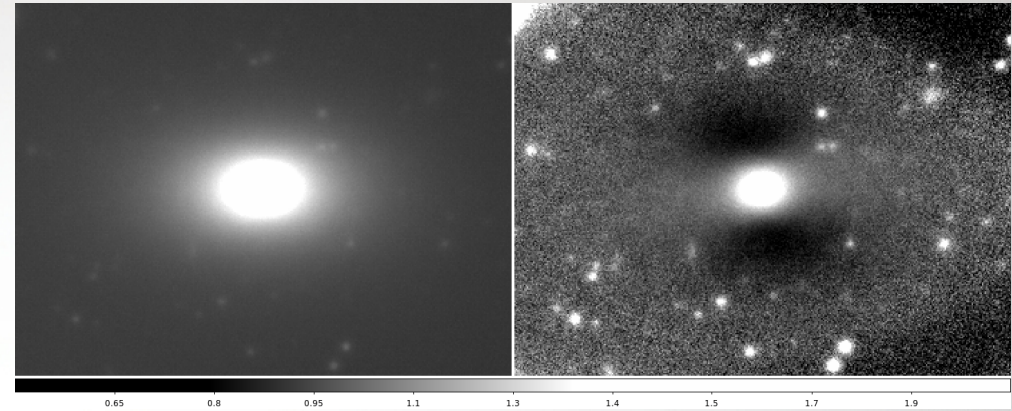
# Presence of disk substructure in dwarfs: some examples

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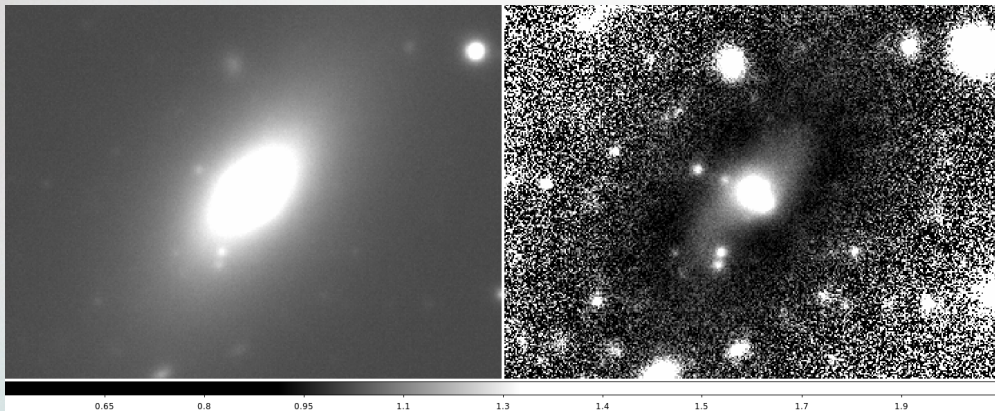
FCC095



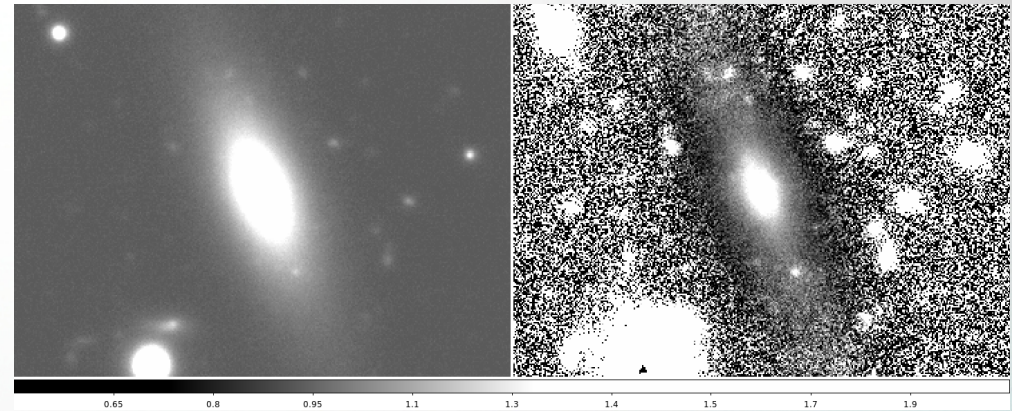
FCC202



FCC203



FCC264



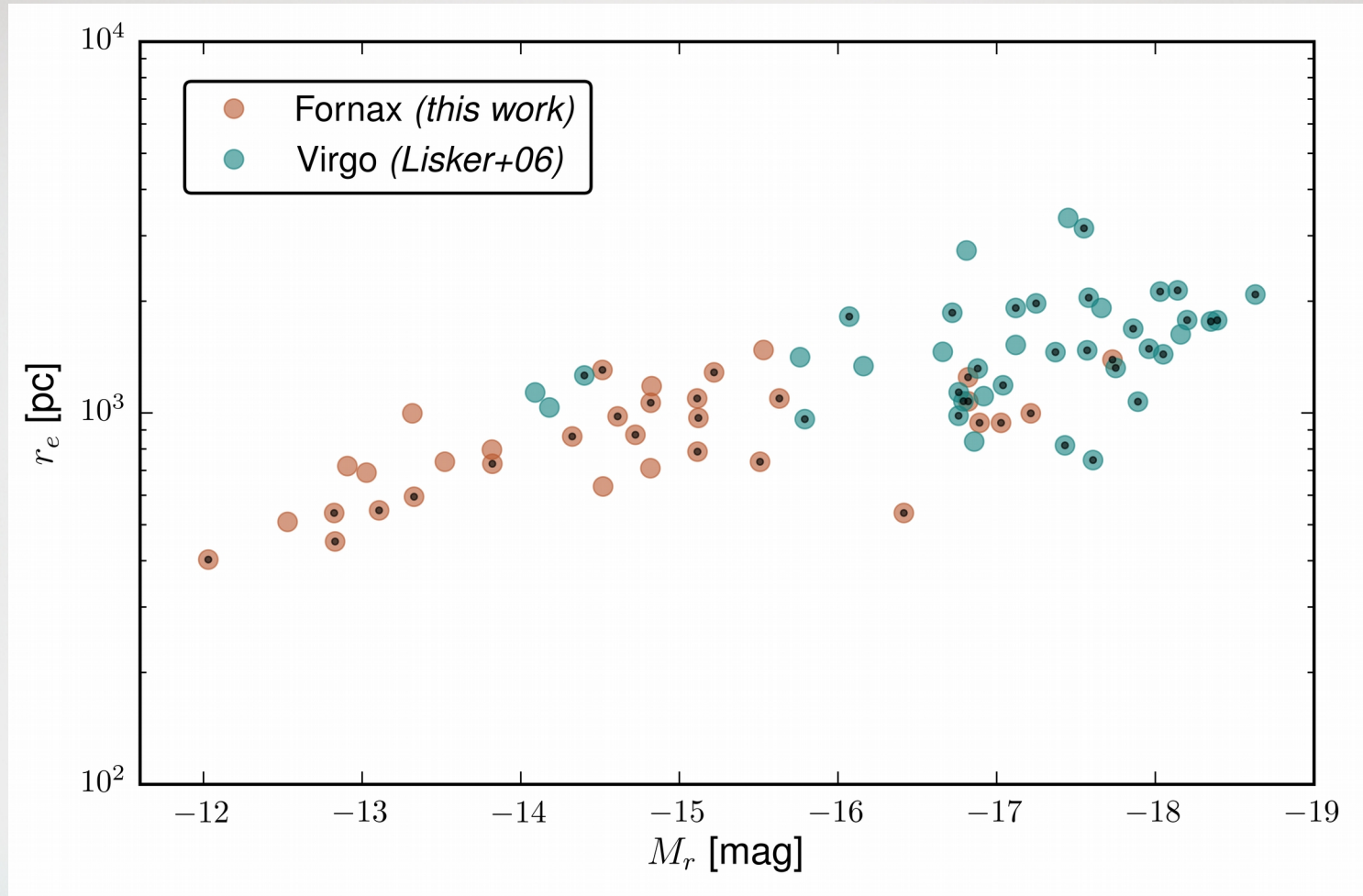
## Results:

- 34 candidates with disk substructure,
- 8 fall in the certain/probable categories.

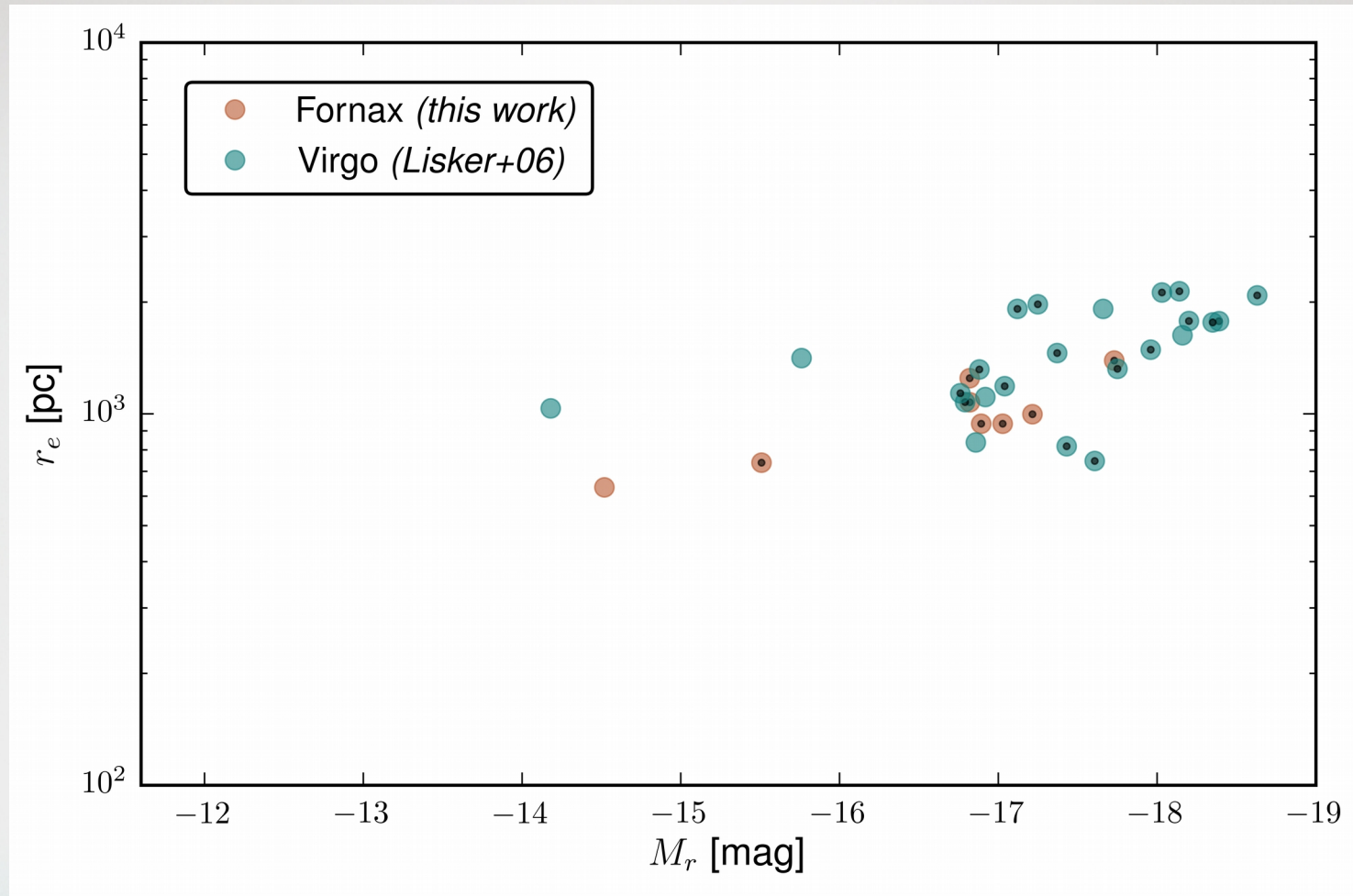


## Comparison: Fornax vs Virgo cluster

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Secure candidates with disk substructure:

Fornax: 8  
Virgo: 24

1 : 3



## Questions...

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### Facts:

- Virgo is at least twice as massive,
- Fornax regarded as more evolved and compact.

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Does the number of disk dwarf galaxies simply scale with cluster mass?

Or...

Do we find more disk dwarfs in Virgo because it is less evolved?



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### Facts:

- Virgo is at least twice as massive,
- Fornax regarded as more evolved and compact.

Does the number of diskly dwarf galaxies simply scale with cluster mass?

Or...

Do we find more diskly dwarfs in Virgo because it is less evolved?

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How are diskly dwarfs *formed*?