

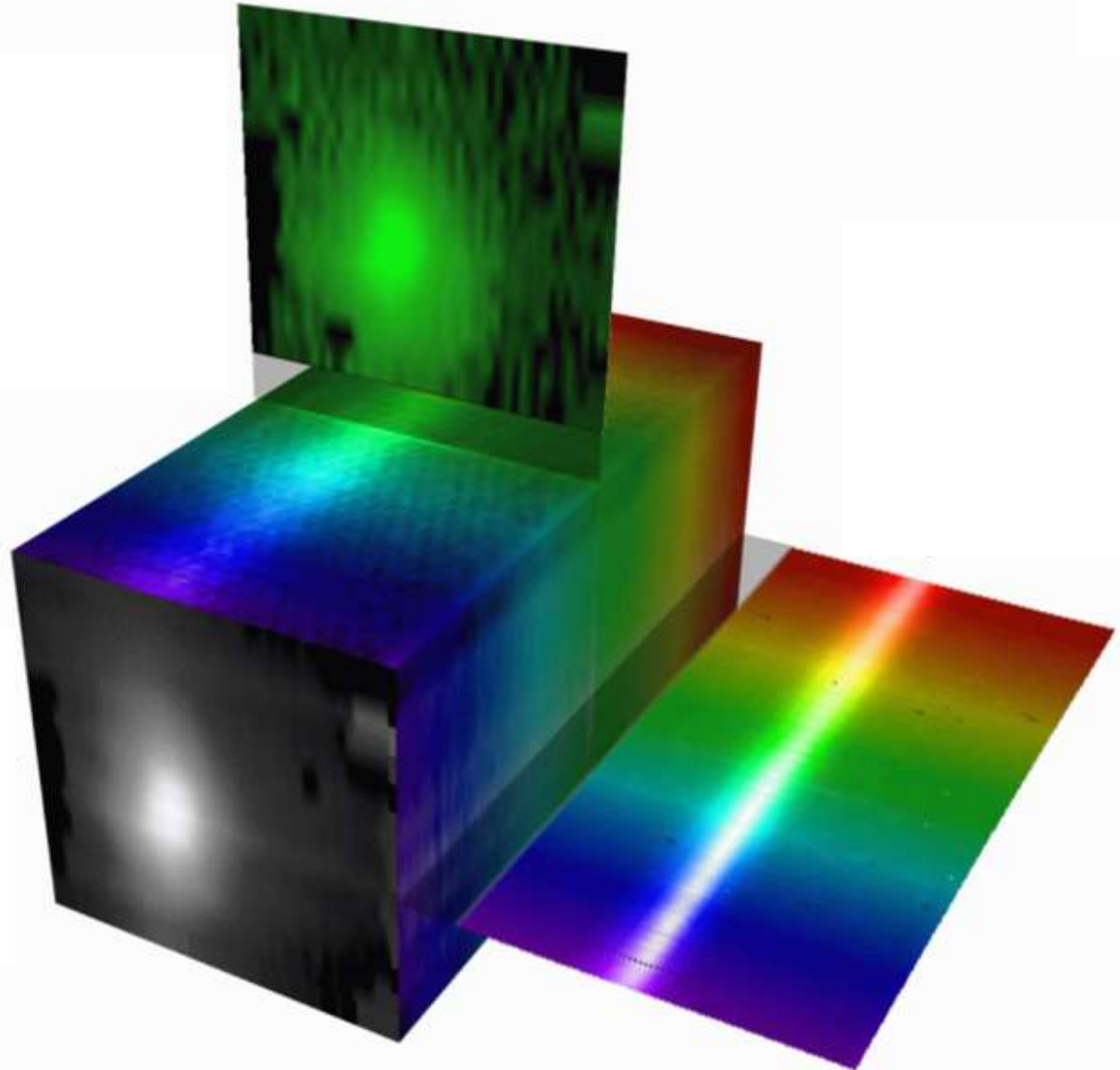


Kinematics with SAMI

Lisa Fogarty
University of Sydney

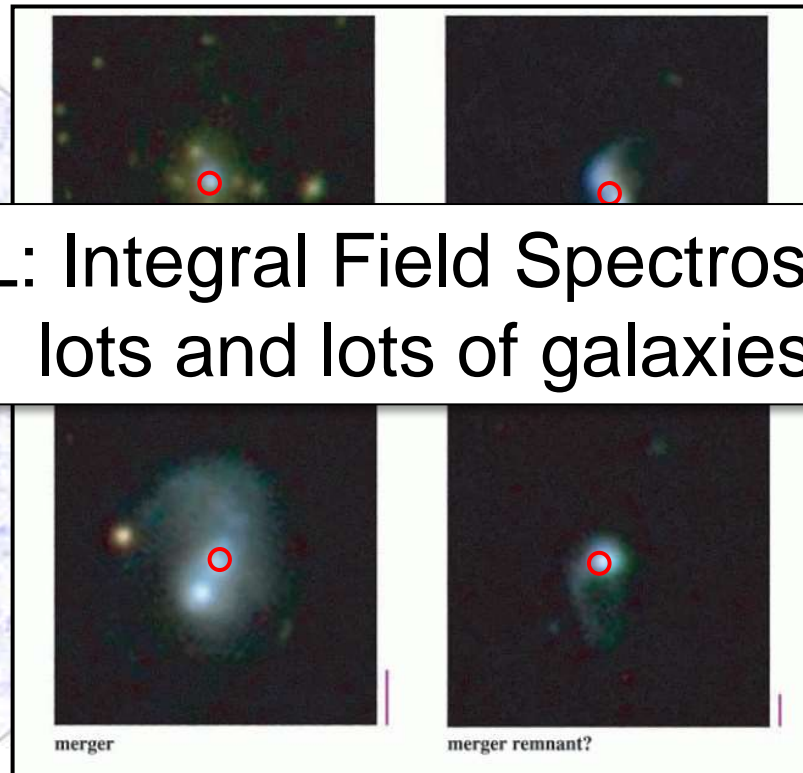


Integral Field Spectroscopy



Multi-object IFS

IDEAL: Integral Field Spectroscopy of lots and lots of galaxies!



Kauffmann et al. (2005)

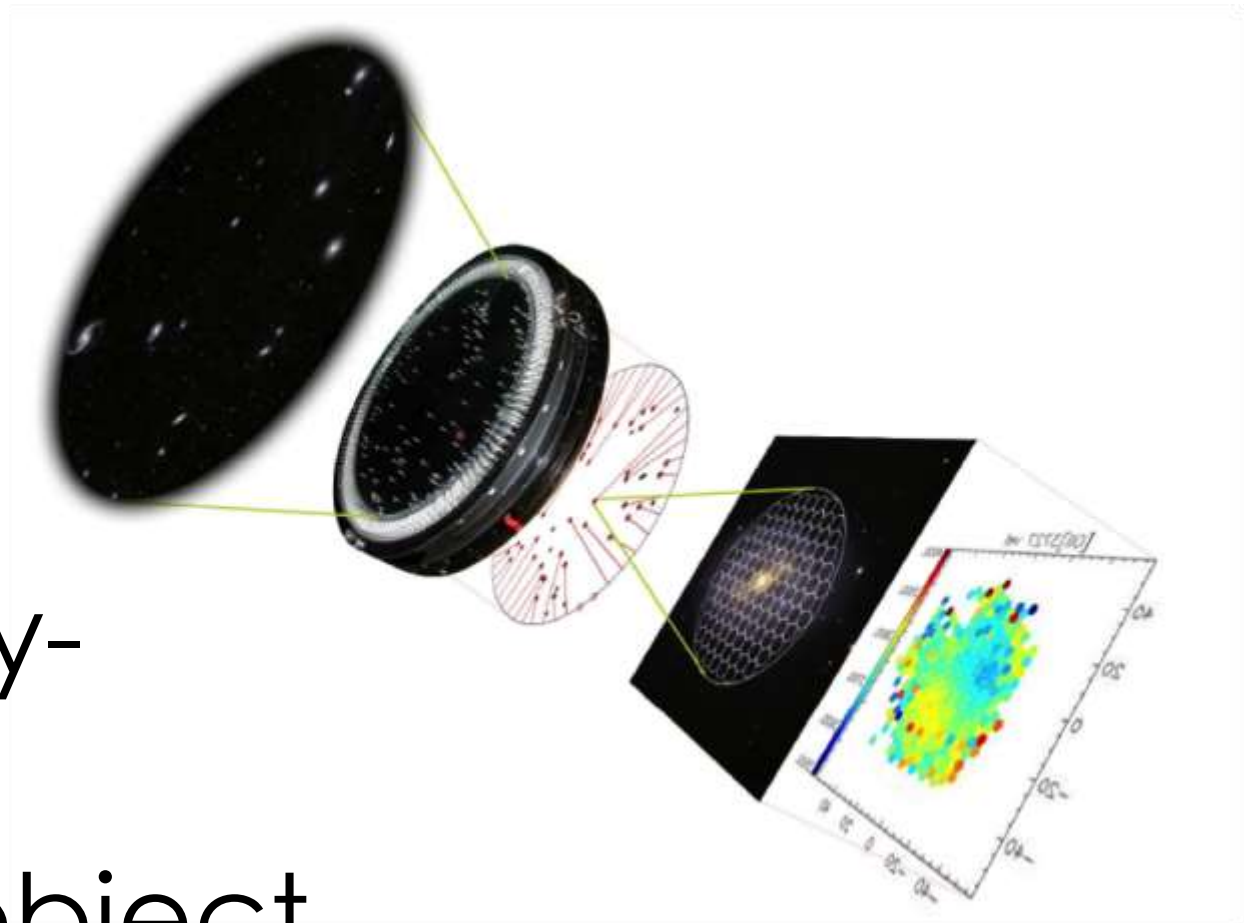
Colless et al. 20

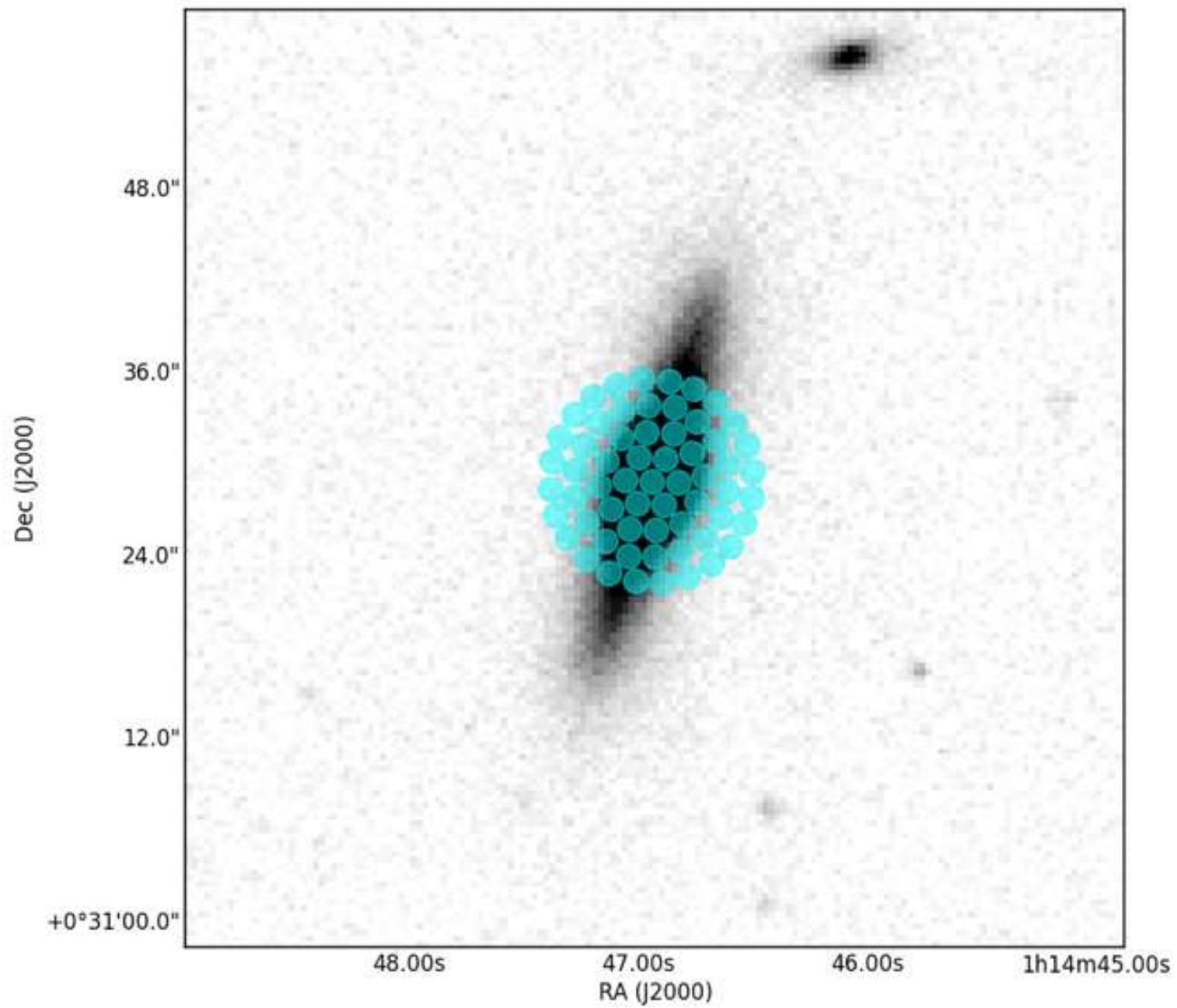
SAMI

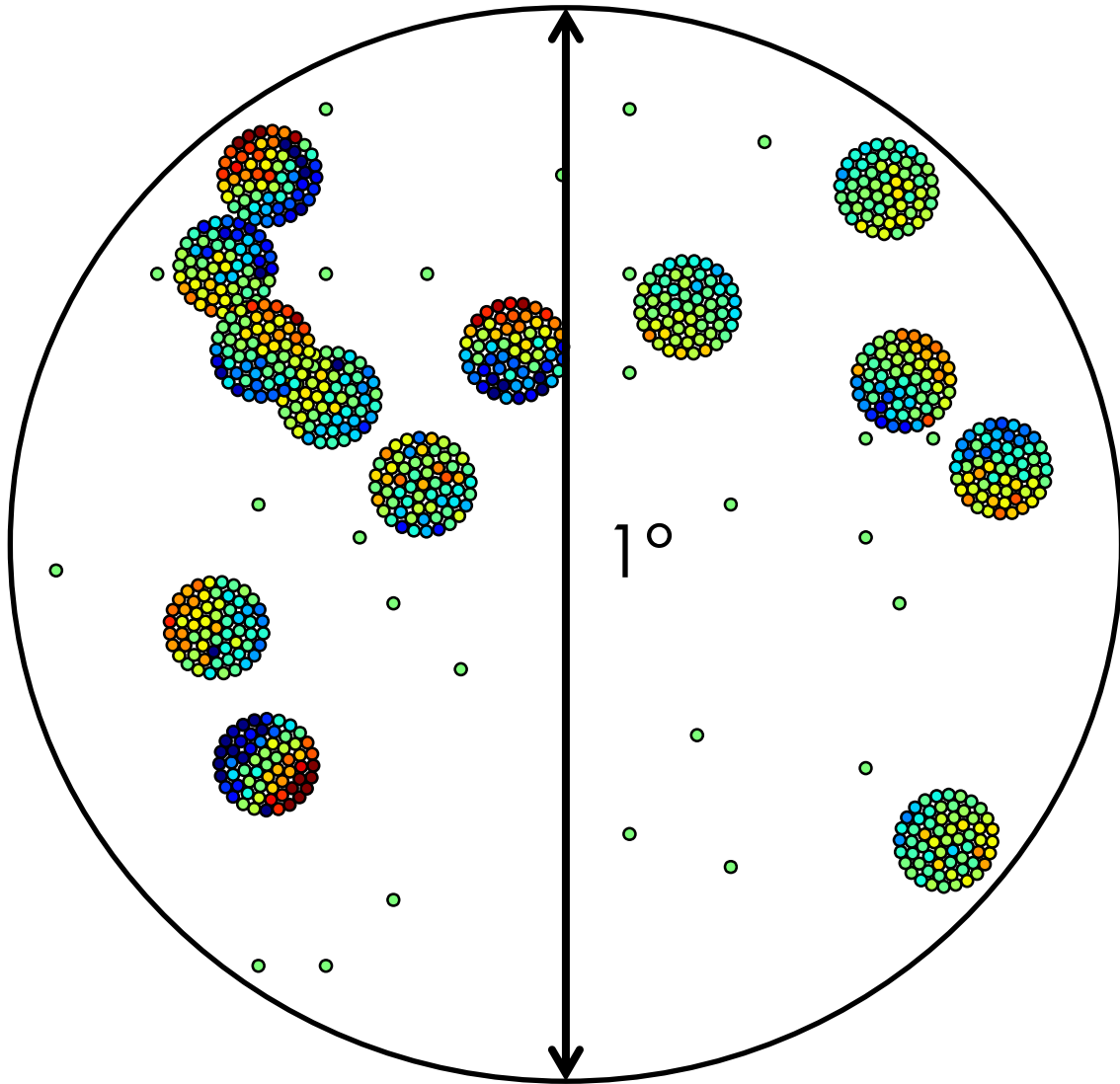
Sydney-
AAO

Multi-object

Integral field spectrograph







SAMI – At a Glance.

Bundles (IFUs): **13** Total fov: 1 degree
Sky Fibres: 26 Bundle fov: 15"
Total Fibres: 819 Fibre diameter: 1.6"

RED

R~4500

λ : 625nm-735nm

BLUE

R~1700

λ : 370nm-570nm

The SAMI Galaxy Survey



The SAMI Galaxy Survey

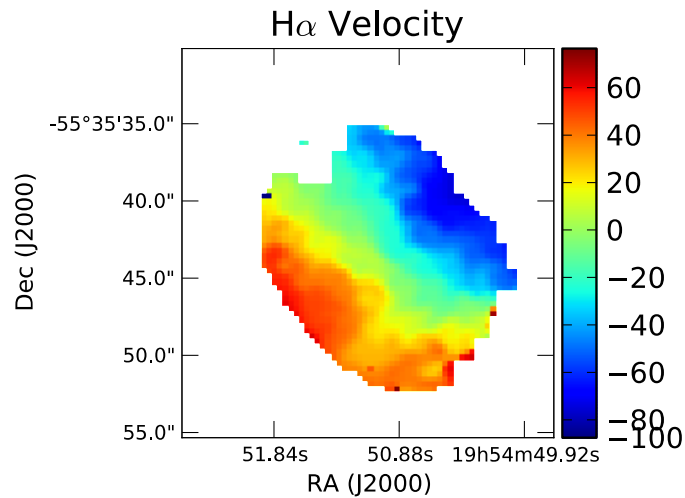
- Physics of galaxy transformations.
 - Gas Flows in galaxy evolution.
 - Build up of mass and angular momentum.
-
- 3400 galaxies.
 - 3 years – just awarded 151-181 nights on AAT!
 - Already underway! ~360 galaxies already!



Current SAMI Science

The background of the slide is a deep space image. It features a dense field of stars of various colors and sizes. A prominent feature is a bright, glowing purple nebula or star cluster located in the upper-middle portion of the frame. The overall color palette is dominated by dark blues, purples, and magentas, with scattered white and yellow stars providing contrast.

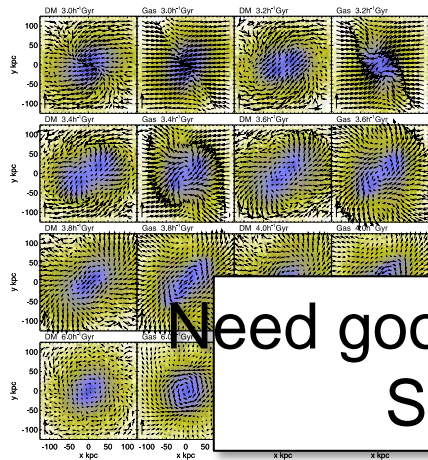
Science Case 1: Galactic Wind



Disk Fit by Andy Green

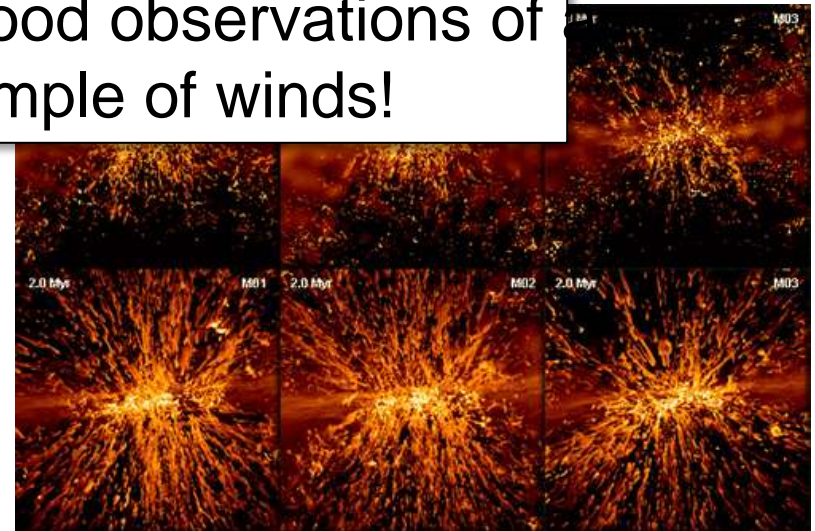
Fogarty et al.
2012

The Importance of Winds



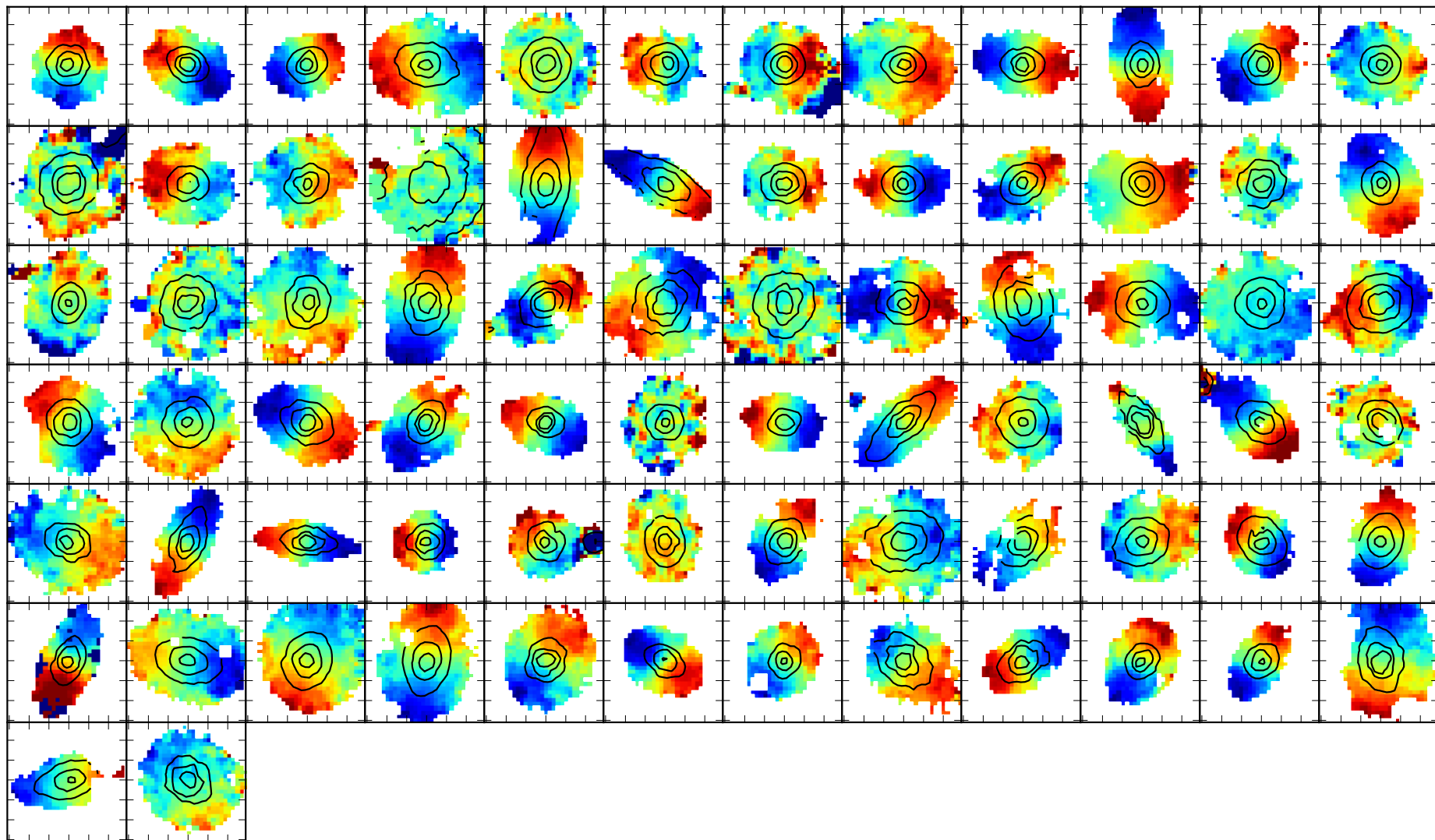
Need good, well-understood observations of
STATISTICAL sample of winds!

Invoked in hydrodynamical simulations to solve the AMD problem. (Sharma et al. 2012)

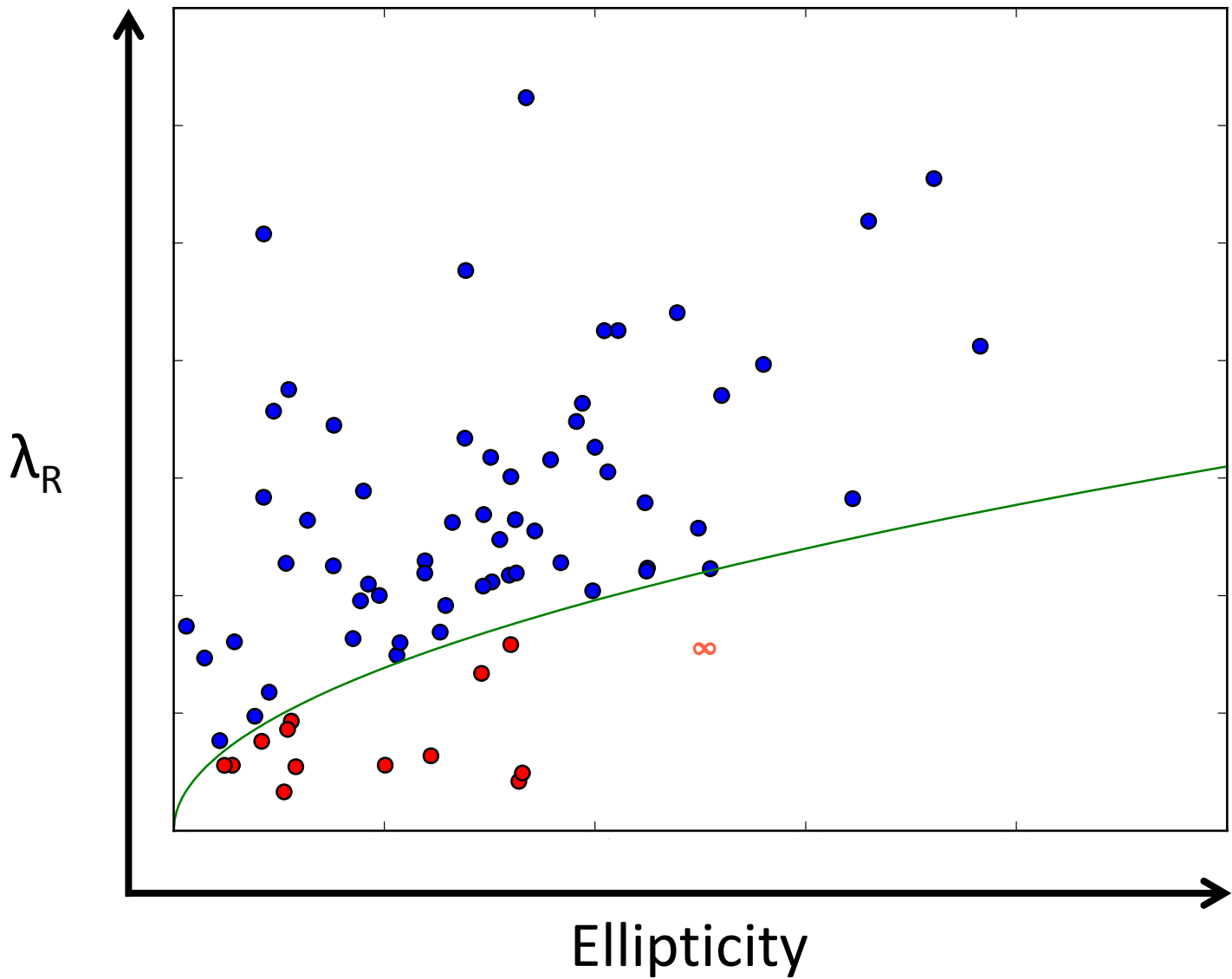


Detailed models of winds themselves can reproduce morphology and kinematics (Cooper et al. 2008)

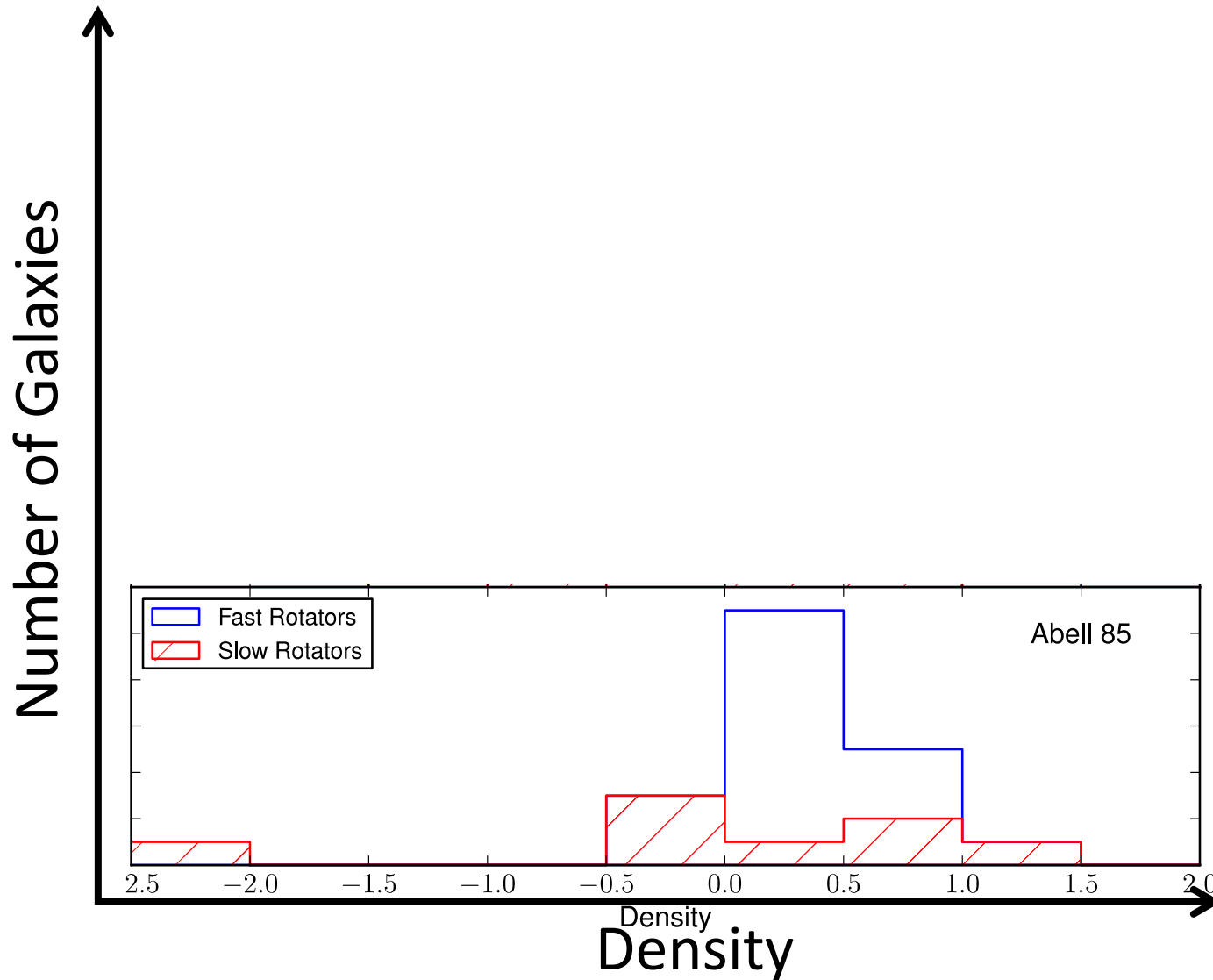
Science Case 2: Stellar Kinematics of Ellipticals



λ_R



Kinematic Morphology-Density Relation



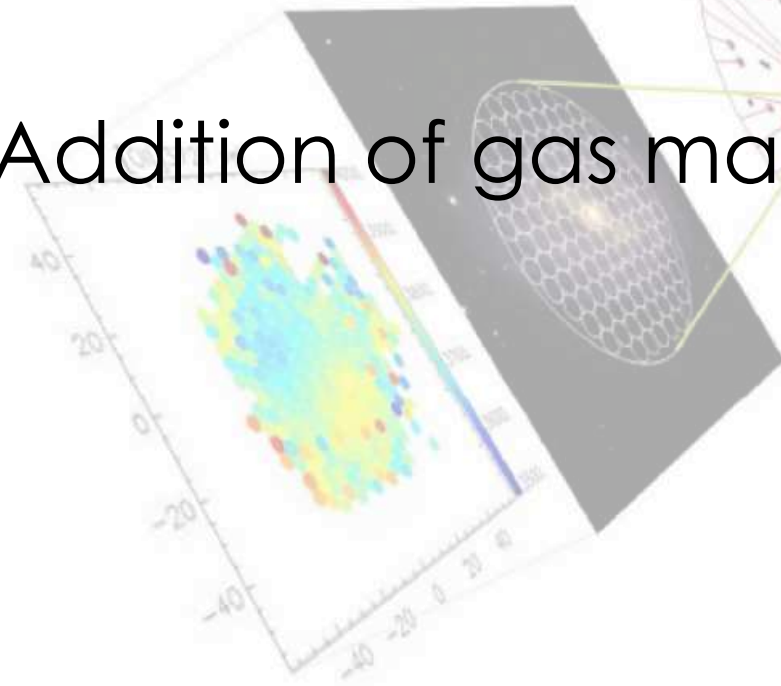
Abell 85:



Image Credit: Matt Owers

SAMI and HI

- Powerful combination: SAMI + HI
- Addition of gas mass for our galaxies.



SAMI and (resolved) HI Kinematics

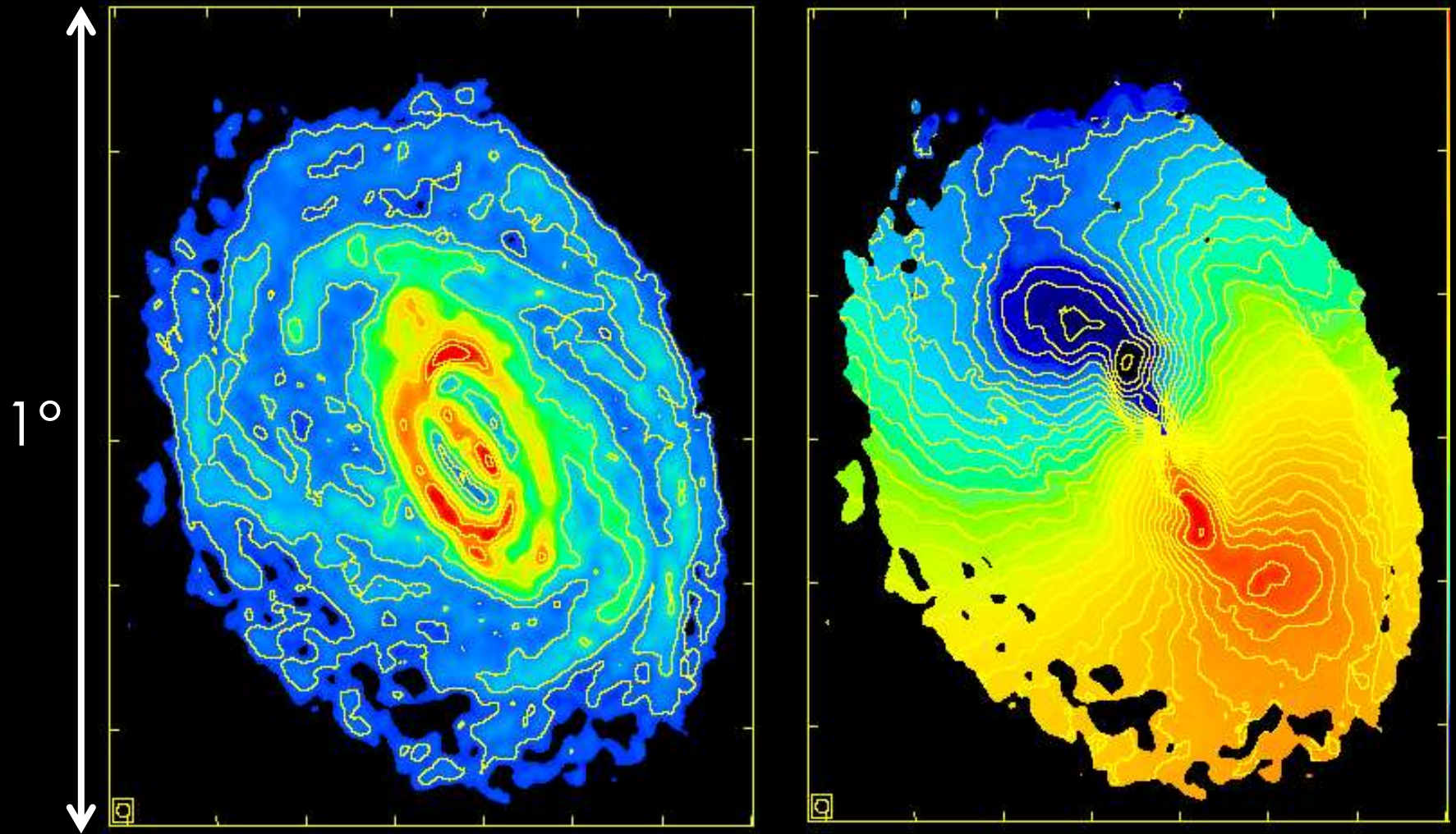
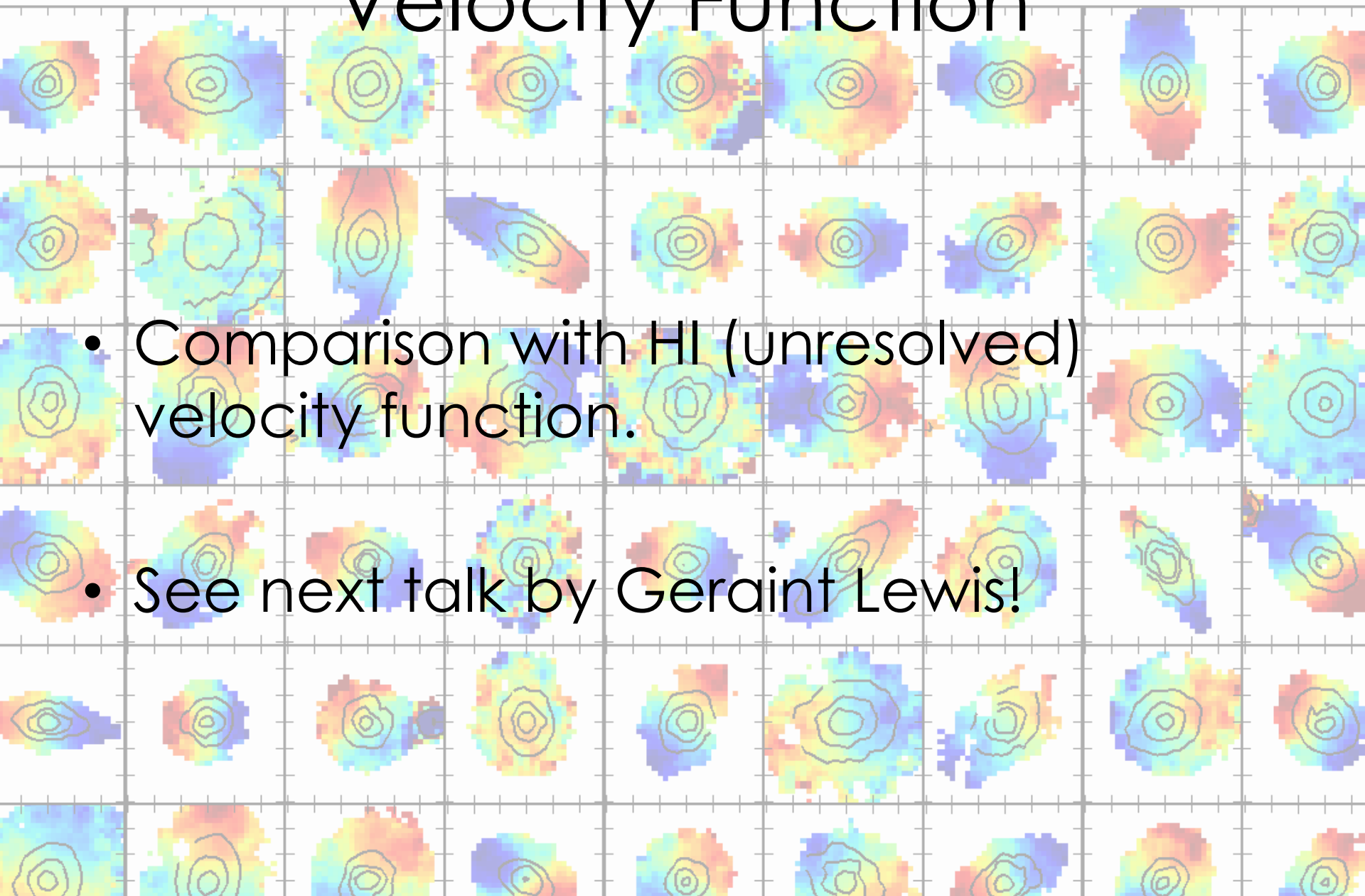


Image credit: Jones, Koribalski, Elmouttie,
Haynes 1999 MNRAS 302, 649

Velocity Function

- Comparison with HI (unresolved) velocity function.
- See next talk by Geraint Lewis!



SAMI Galaxy Survey



- Associate membership status available.
- Propose a specific project.
- Access to SAMI data for that project.
- Contact: scroom@physics.usyd.edu.au
- ALFALFA!