Conference Summary

The Changing Face of Galaxies: uncovering transformational physics

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Conference Sessions

1. Physical Reasons Behind Morphological Transformations
2. Drivers of Kinematic Transformation
3. Processes Controlling the Quenching of Star Formation
4. AGN and Star-Formation Feedback
5. Gas Accretion and Re-Fuelling
6. External and Internal Processes in Galaxy Formation
7. How the Key Physical Processes of Galaxy Formation Change with Cosmic Time

Lots of Science

140 participants
70 talks
58 posters
5 days

Each representing months or even years of work.

Kakkad: "*I'll be presenting 2 years of work in 12 minutes, so sit back and relax* "

Catinella: "*Reviewing the topic of gas in galaxies in a hopeless task in half an hour.* "

Big Questions and Big Themes

IFU Obviously

sami galaxy survey

Calar Alto Legacy Integral Field Area survey

6900 Å 5250 Å 4100 Å

CALIFA

Kevin Schawinski @kevinschawinski · 7m

My half-time takeaway point from **#galaxyface16** is that we are well and truly in the IFU survey age. Galaxies are fully in 3D.

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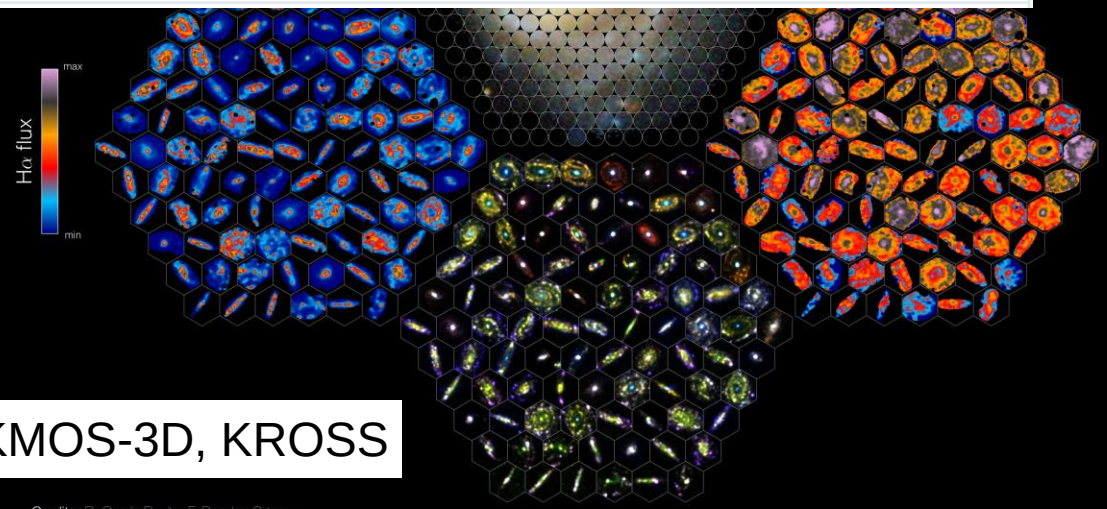
ATLAS 3D

Spectrographic Areal Unit for Research on Optical Nebulae

SAURON



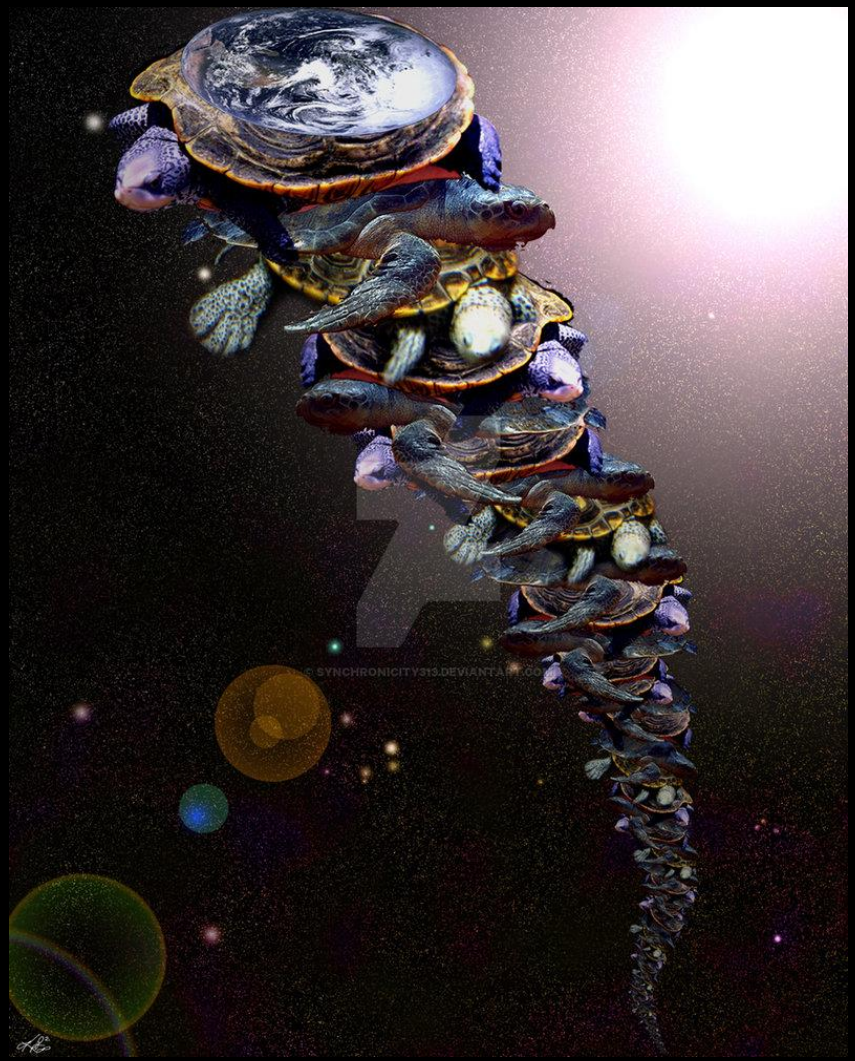
SINFONI, KMOS-3D, KROSS

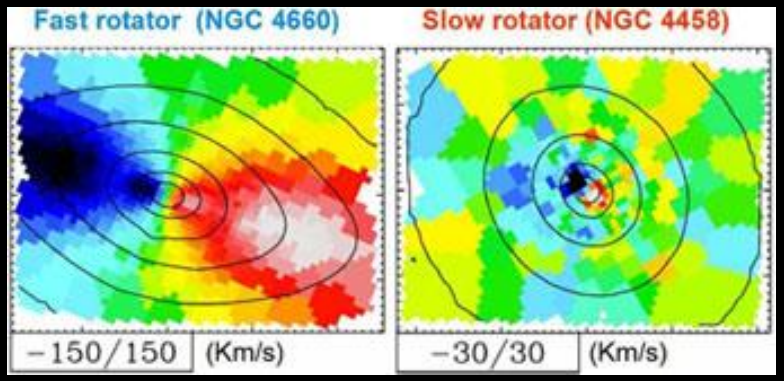
Credits: R. García-Benito, F. Rosales-Ortega, E. Pérez, C.J. Walcher, S.F. Sánchez & the CALIFA team

Hα [NII] 6584 Å [OIII] 5007 Å

Centro Astronómico Hispano Alemán

Kinematics
Discs (?) are everywhere



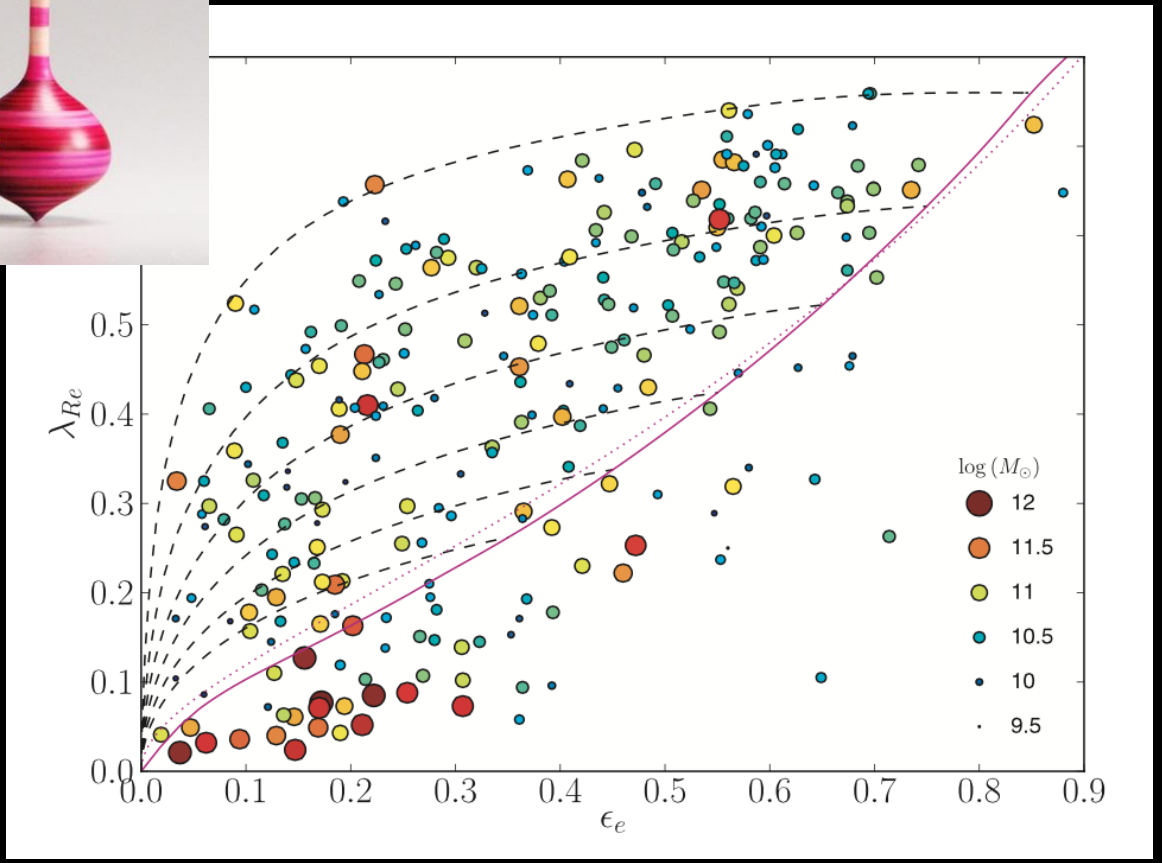


- 70% of RC3 ellipticals are fast rotators (Capellari)
- Most S0 bulges show rotation (Mendez-Abreu)
- 83% of z=1-2 galaxies rotate (Wisnioski)
- Most massive galaxies at high z rotate (Mendel)
- 77% of KROSS galaxies rotate (Bureau)
- Most low mass passive galaxies rotate (Penny)
- ETGs lie on the “Tully-Fisher” relation (Jeong)

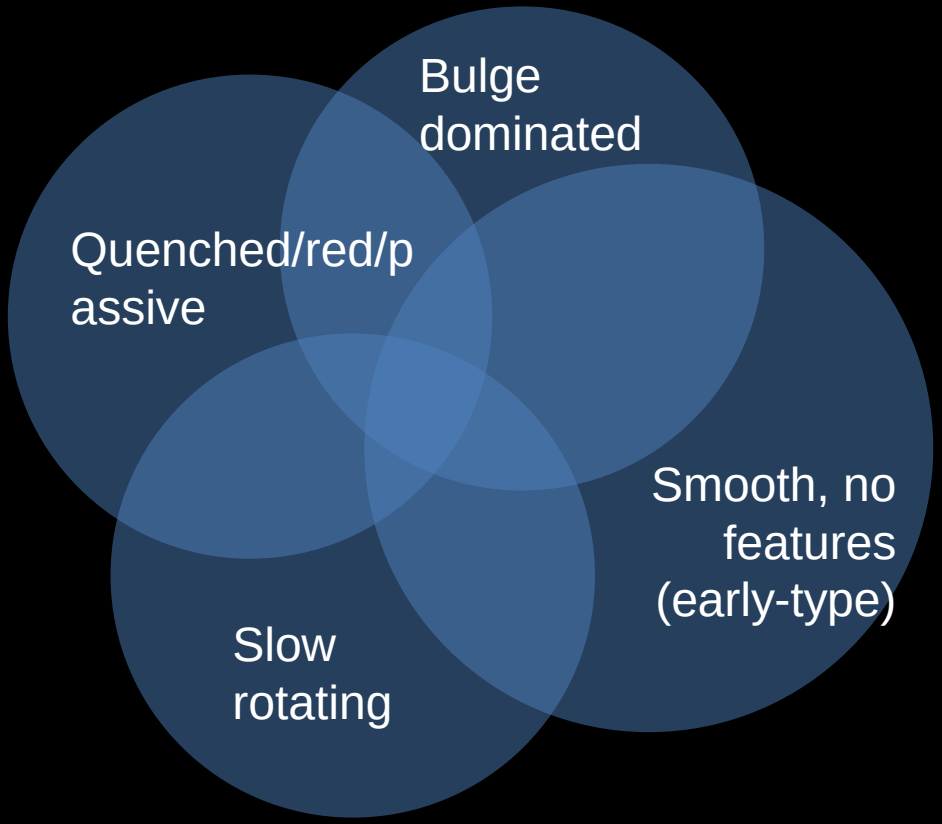
Angular Momentum is Trendy

Yi

Emsellem



Let's be more careful about what we mean when we use morphological terms

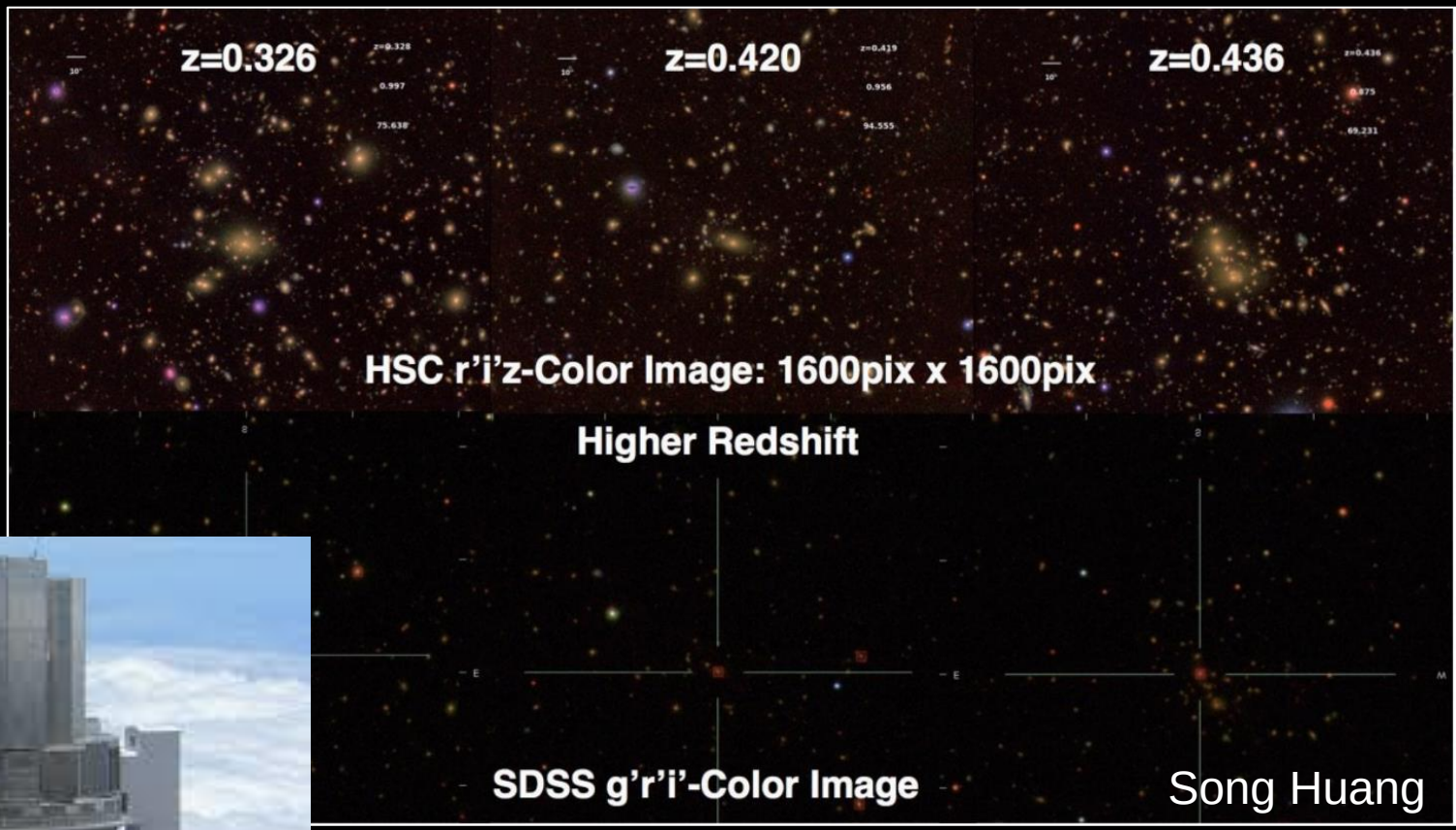


Morphology is not a fixed property

Image depth
Resolution

Distance

Dust



Now we can calibrate with 2D kinematics

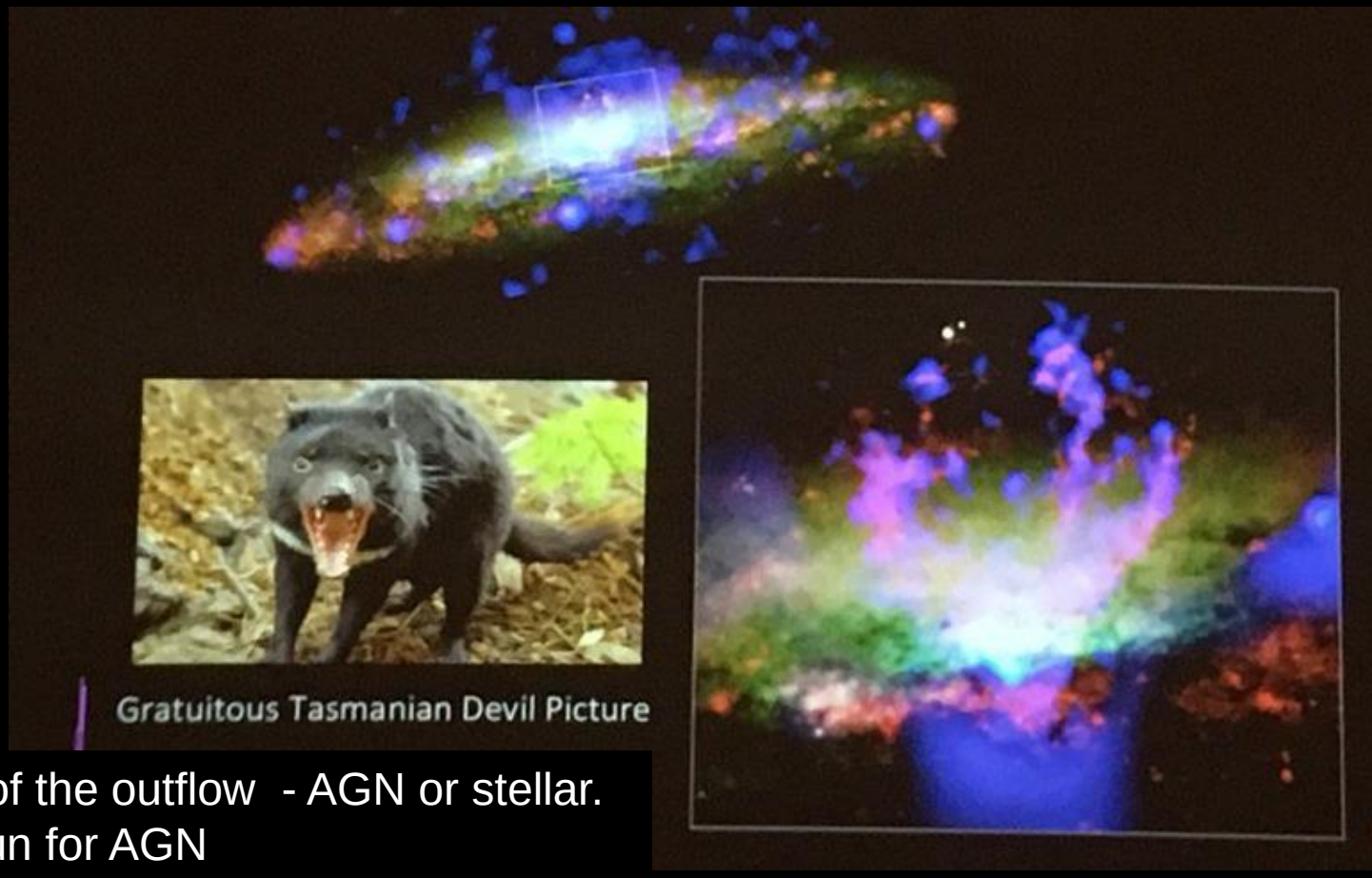
Outflows and Inflows

Kewley: "*The beginning of a new field of galaxy dissection making us able to study processes at many scales".* (don't forget the Milky Way)

Drive IFU to high resolution, larger radii?

Also want big samples

Bland-Hawthorn: "*No two galaxies are alike*"



How to find origins of the outflow - AGN or stellar.
Is OVI a smoking gun for AGN

Gas in Galaxies
SKA Precursers and ALMA

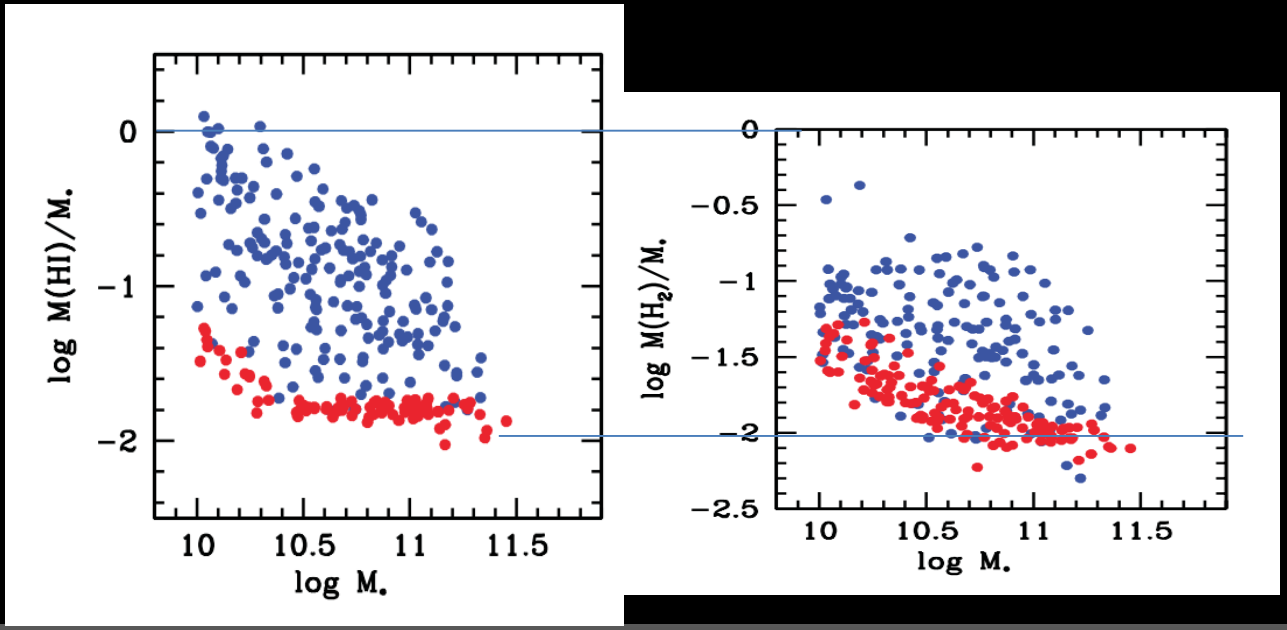
Catinella: "*We cannot understand galaxies and their transformations without knowing about their gas content*"

Lagos (EAGLE): "*gas mass fraction is one of the most important quantities driving the properties of galaxies*"

Define your gas fraction clearly

HI, H_2 or HI+H_2, or HII also…

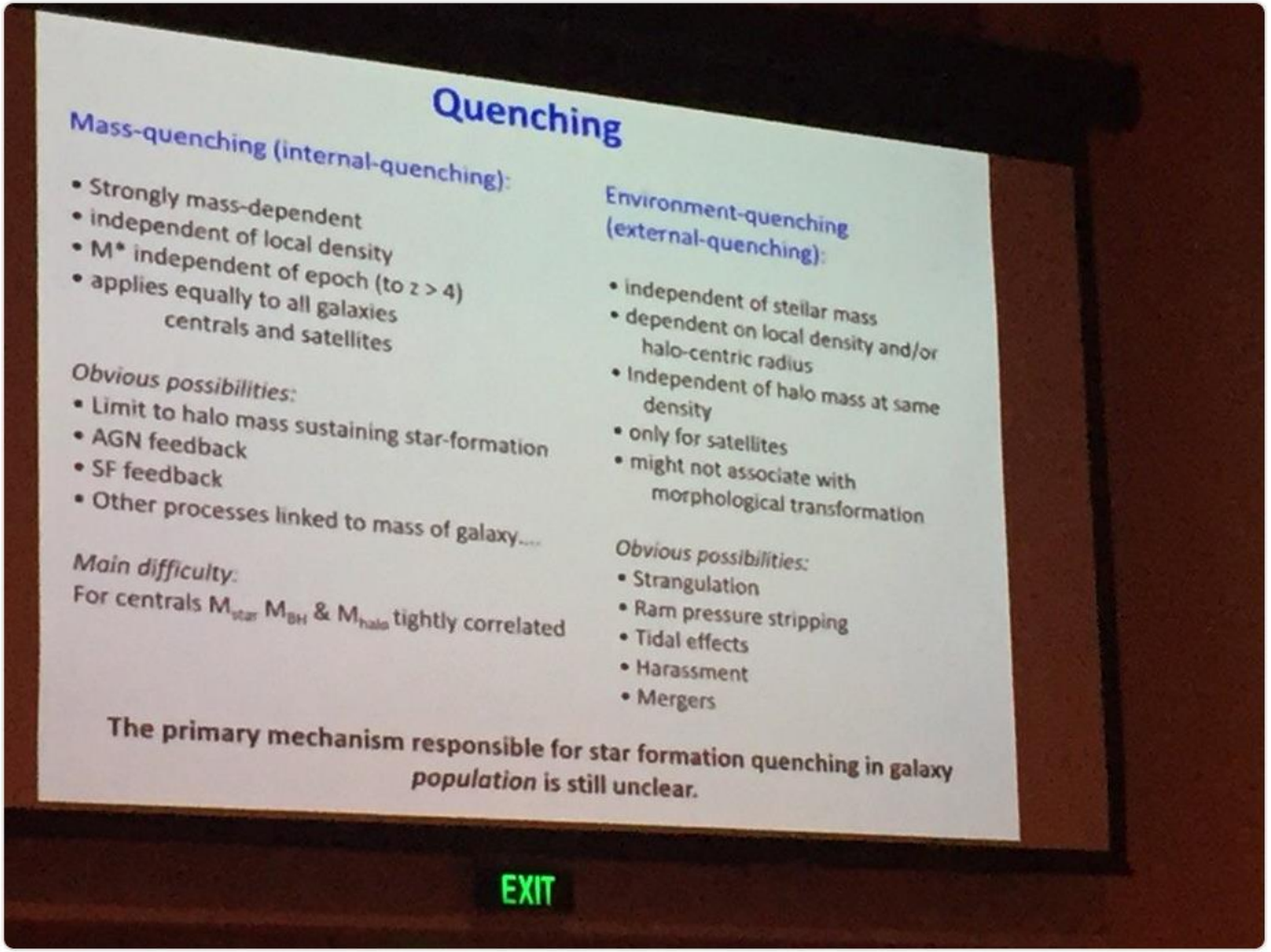
GASS/COLDGASS



Helen Johnson and 1 other liked

Michael Brown @MJIBrown · Sep 20

Peng shows there's more than a few options available for quenching. Sigh, it seemed **easier** 10 yrs ago. **#galaxyface16**



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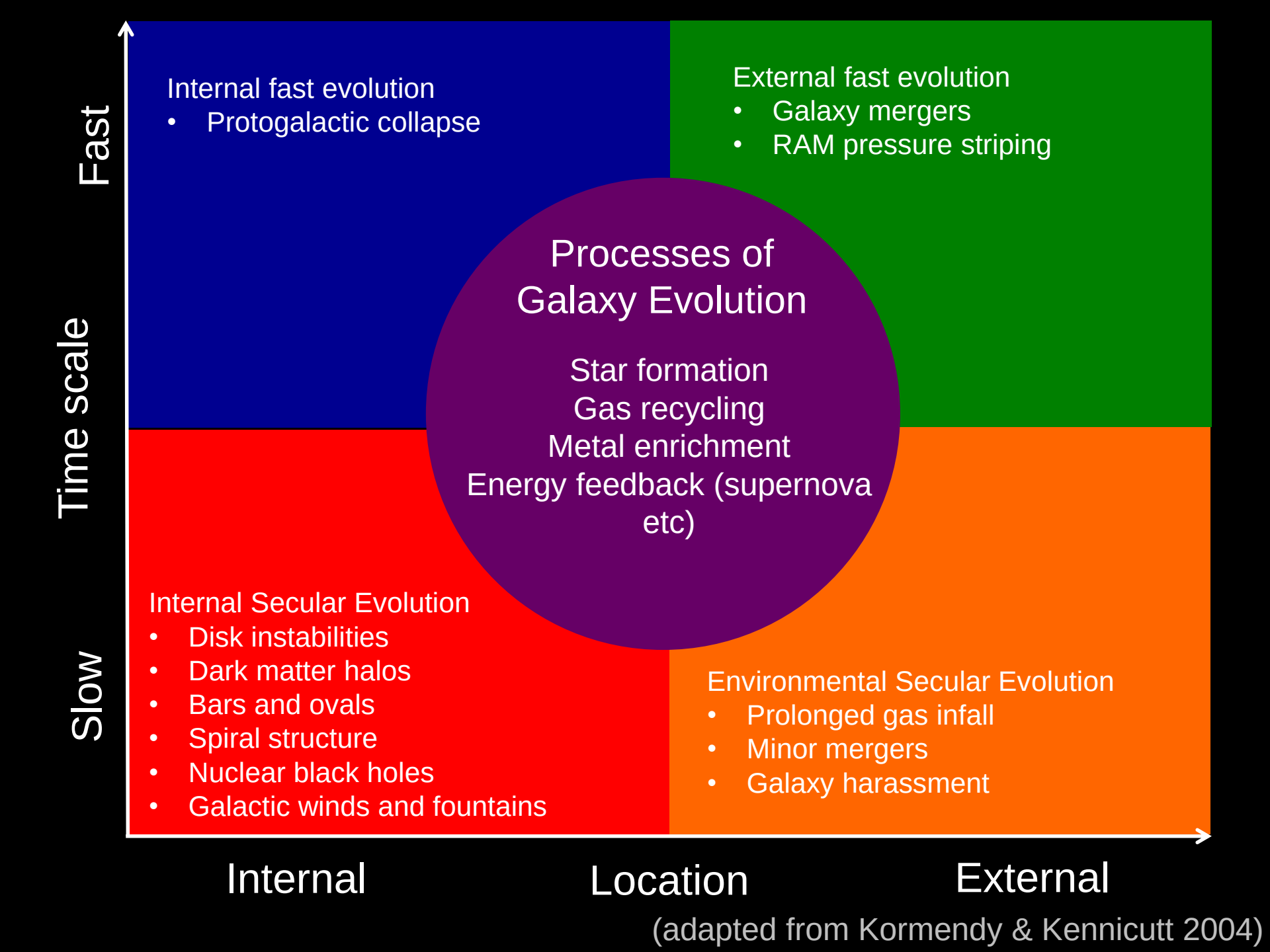
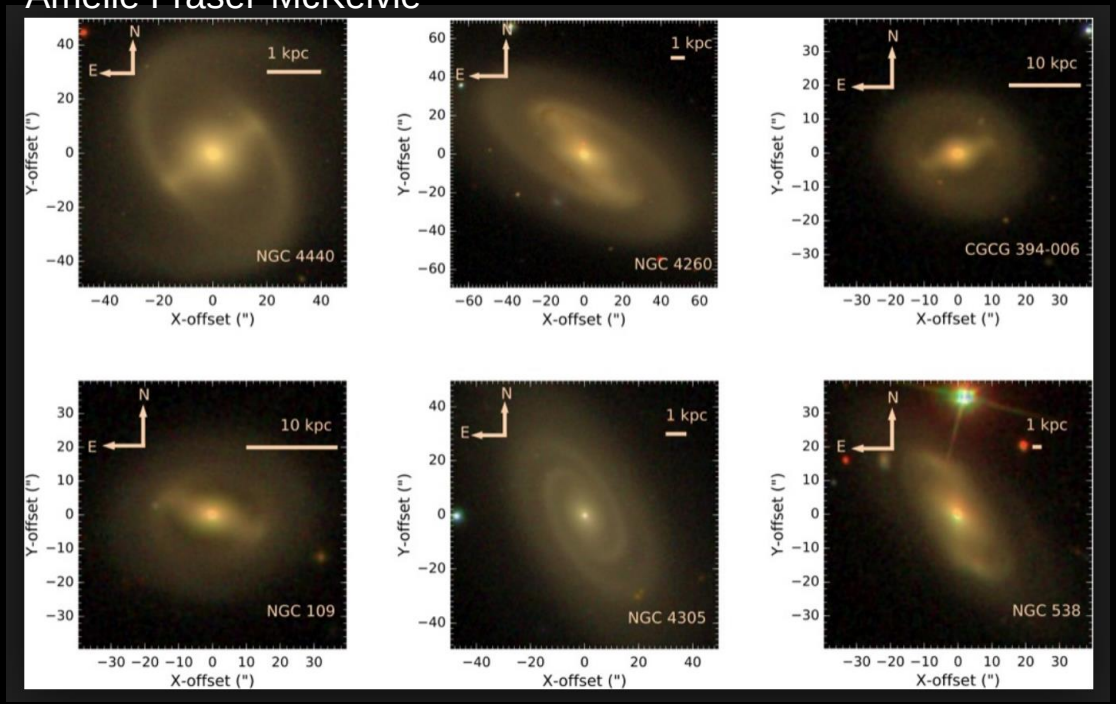


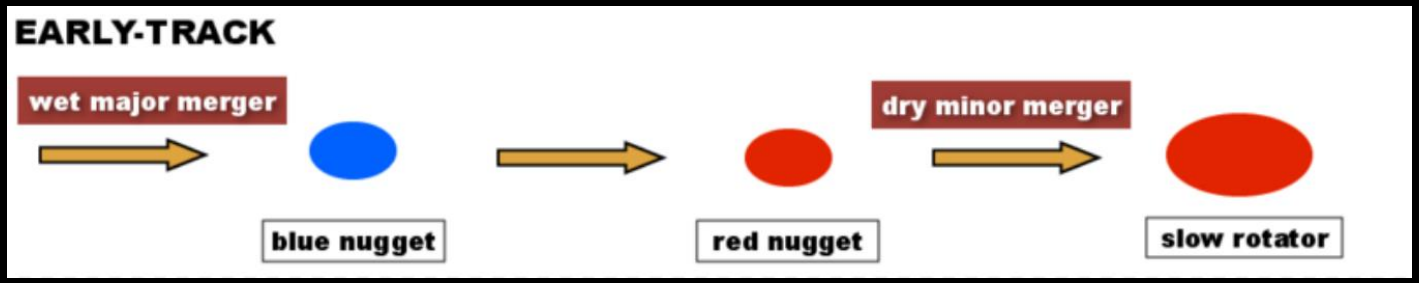
(adapted from Kormendy & Kennicutt 2004)

Which comes first - morphology or star formation changes?

Amelie Fraser-McKelvie

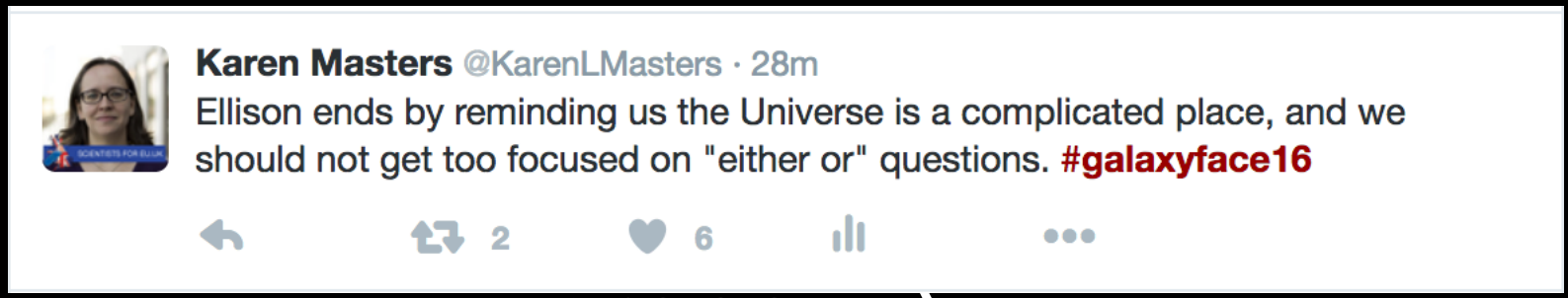


Dale Kocevski



What fraction of the evolution of galaxies is driven by environment and what fraction is internal?

Galaxy morphology evolution includes intrinsic scatter - galaxies



process).

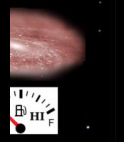
Beware:

Penguin wolves

Trucks of HI

Selection effects

Global perties of galaxies



Definitions and nomenclature

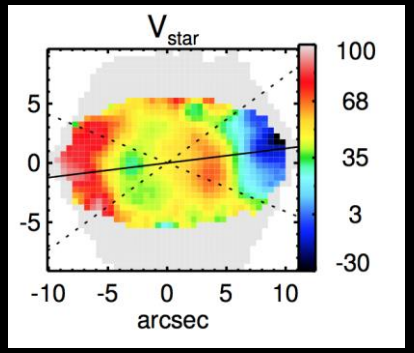
Either/or questions

Galaxy cluster mergers

Star formation histories from stellar population models

Annoying Scott Croom

Counter-rotating discs



Jin et al. 2016 from MaNGA

M101, Mike Hyde