MHONGOOSE

in other Wavelengths

Moses Mogotsi

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Background Image of M51: Hubble (NASA, ESA)

MHONGOOSE

- MeerKAT HI Observations of Nearby Galactic Objects : Observing Southern Emitters (de Blok)

- How do galaxies get their gas?
- How is star formation regulated?
- How are outer disks & the cosmic web linked?

- Deep HI Observations
- 6000h – 30 galaxies
- MeerKAT
- SINGG-derived precursor sample (96 galaxies)
  - Sample (30) has been chosen
  - Ancillary Data, characterize final sample

Background Image of M51: Hubble (NASA, ESA)

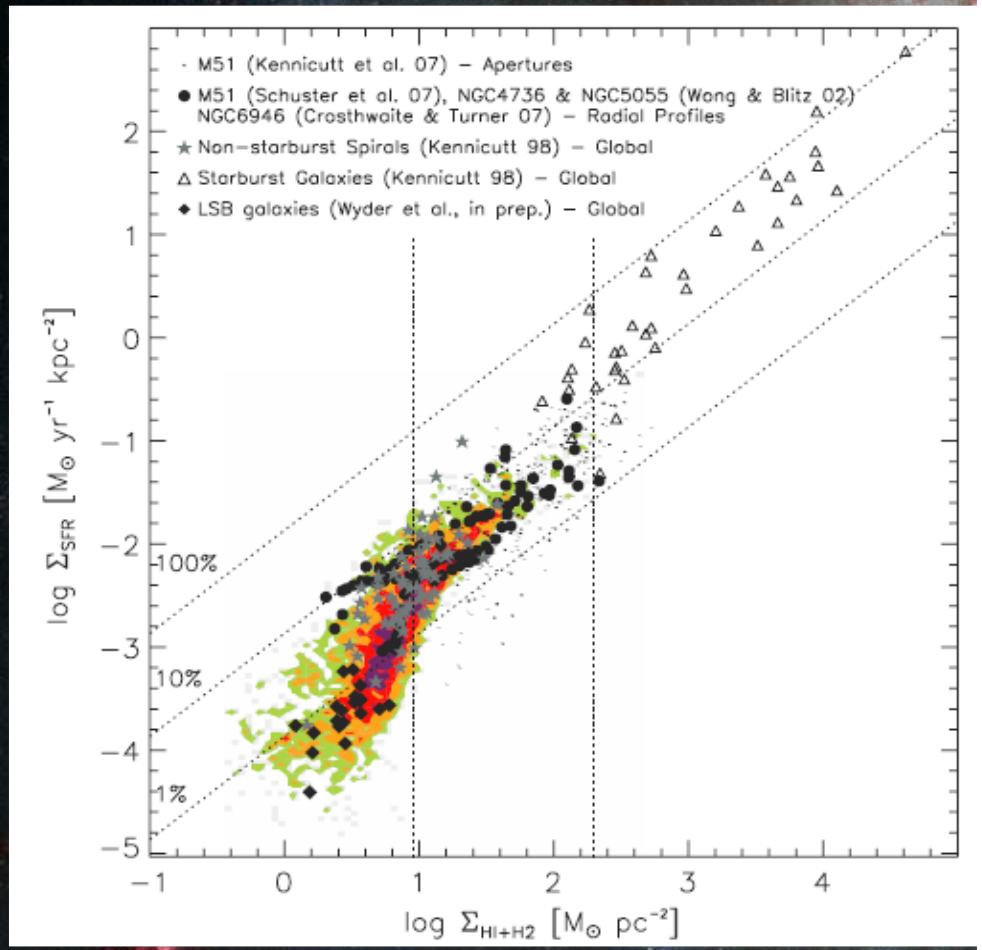
MHONGOOSE

- How do galaxies get their gas?
- How is star formation regulated?

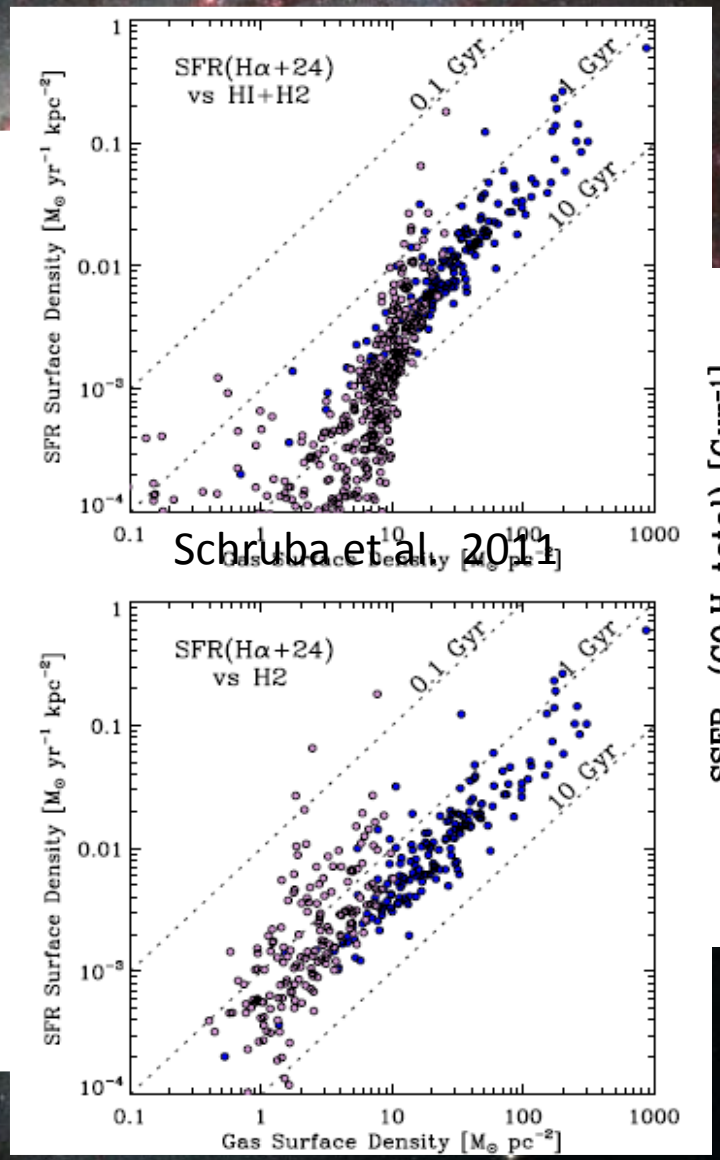
- ISM :
  - Stars
  - Dust
  - Molecular Gas
  - Neutral Atomic Gas
  - Ionized Gas

Background Image of M51: Hubble (NASA, ESA)

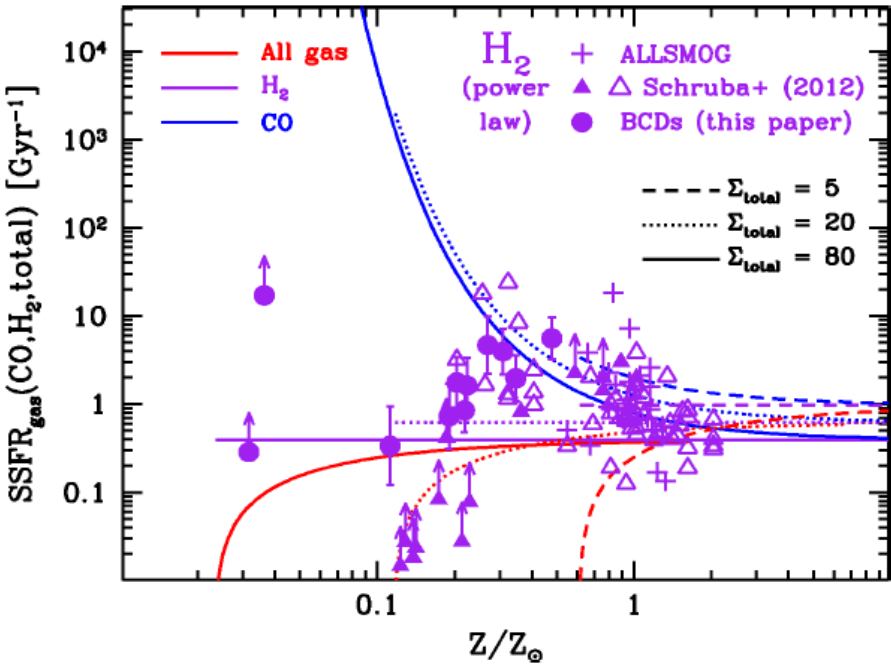
Star Formation & ISM



Bigiel et al 2008



Schruba et al. 2011

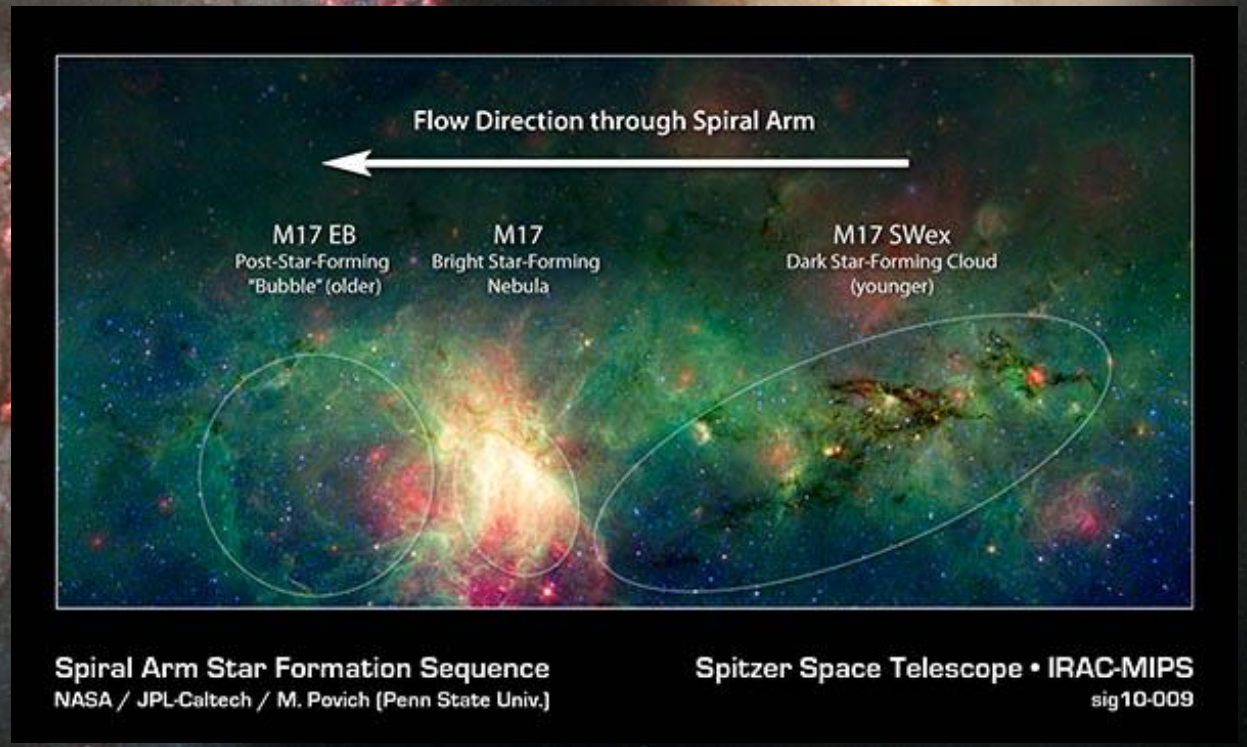


Hunt et al. 2015

Background Image of M51: Hubble (NASA, ESA)

ISM Dynamics & Kinematics

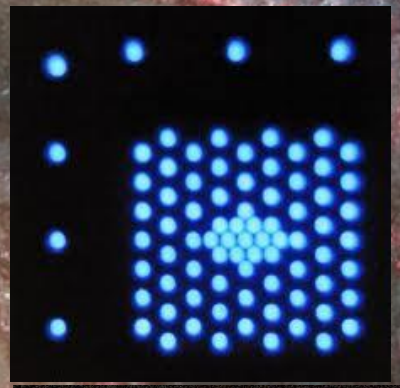
SINGS + THINGS + HERACLES +
GALEX & Spitzer Observations



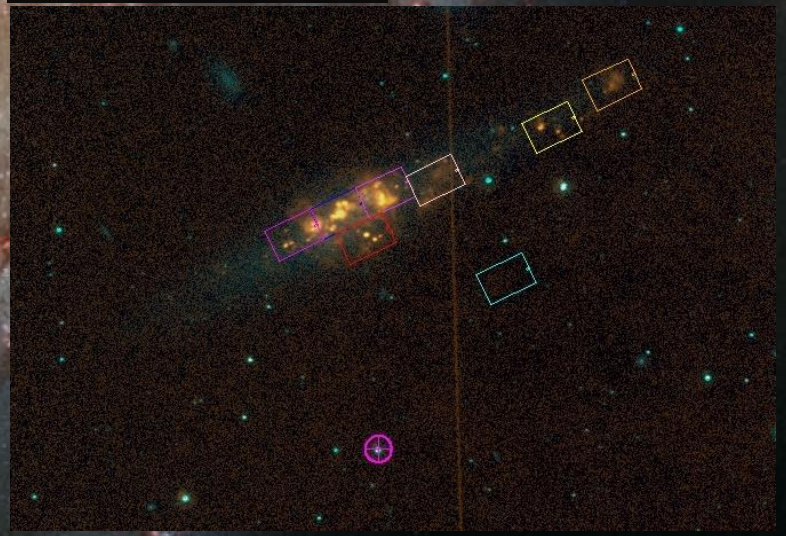
Background Image of M51: Hubble (NASA, ESA)

MHONGOOSE Spectroscopy

- WIYN SparsePAK
  - **~650.0 – 690.0 nm**
  - **82 fibers, 100” coverage**
  - **0.02 nm Resolution**
  - **4.5” Fiber Diameter**



- WiFeS IFU
  - **FOV: 25” x 38”**
  - **1” Res, Seeing-limited**
  - **Blue : 320-590nm (0.077nm)**
  - **Red : 530-706nm (0.044nm)**



Background Image of M51: Hubble (NASA, ESA)

WIYN SpasrsePAK

- 4 Galaxies
- J0031-22, J1103-23:S1, J1103-23:S2, J0335-24

Background Image of M51: Hubble (NASA, ESA)

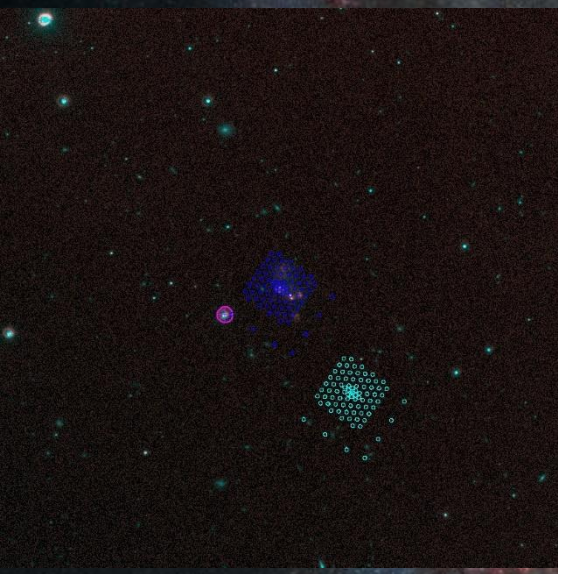
WIYN Sparsepak

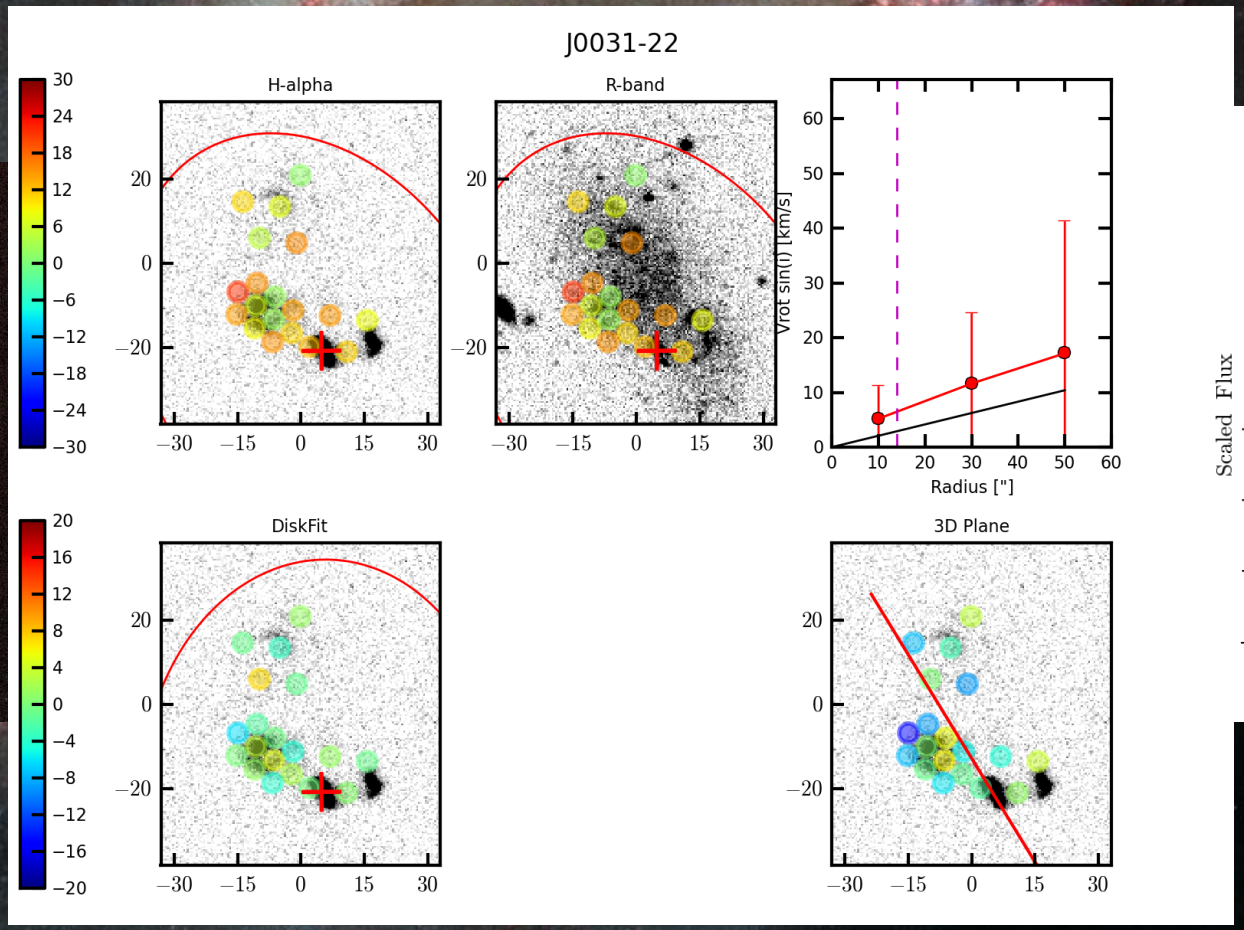
- 4 MHONGOOSE Galaxies
- J0031-22, J1103-23:S1, J1103-23:S2, J0335-24

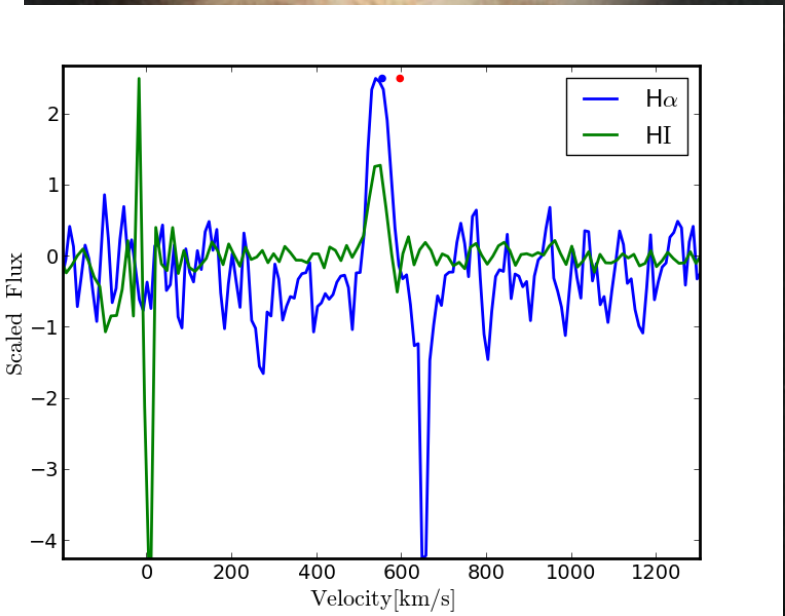
- Kinematic Analysis:
  - DISKFIT (Spekkens and Sellwood 2007)
  - ROTCUR
  - 3D Plane
    - Assumes a linearly rising rotation curve
    - Can model velocity field as a 3D plane
    - Fit the position angle, velocity gradient

J0031-22 (ESO473-G024)

- D= 7.91 Mpc ; M= 8.01 $\log M_{sol}$



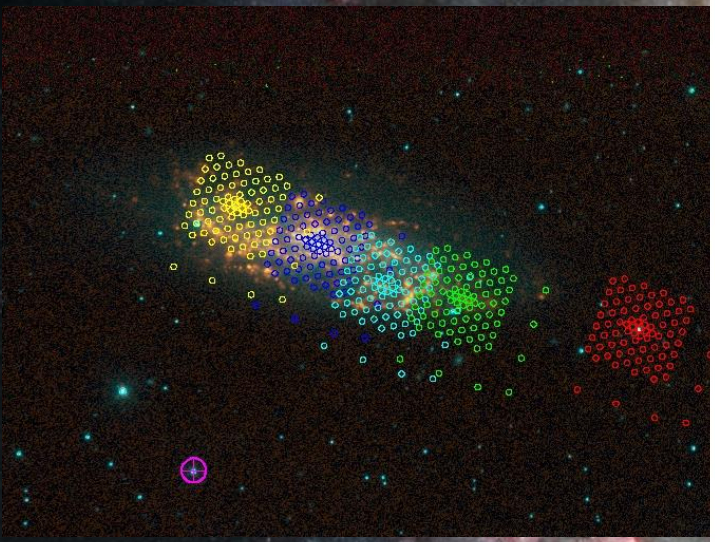


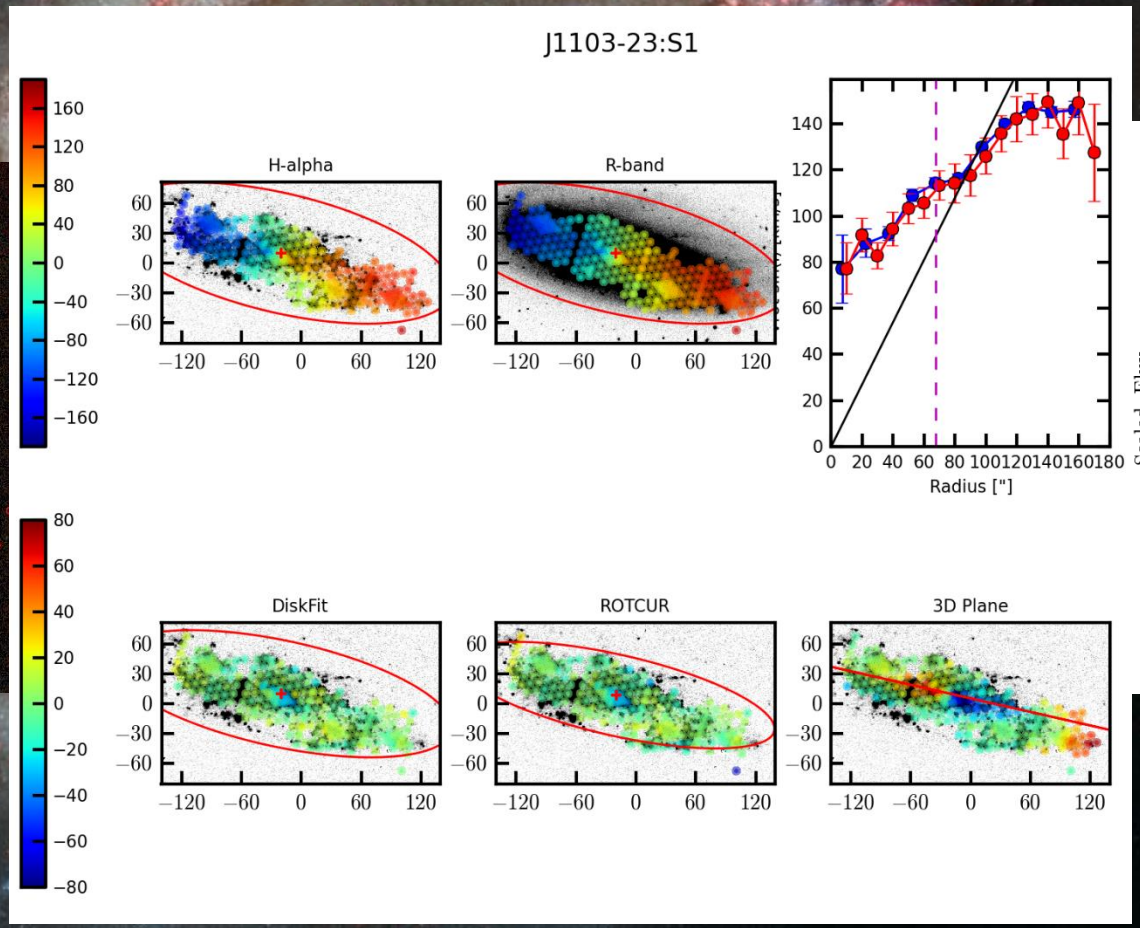


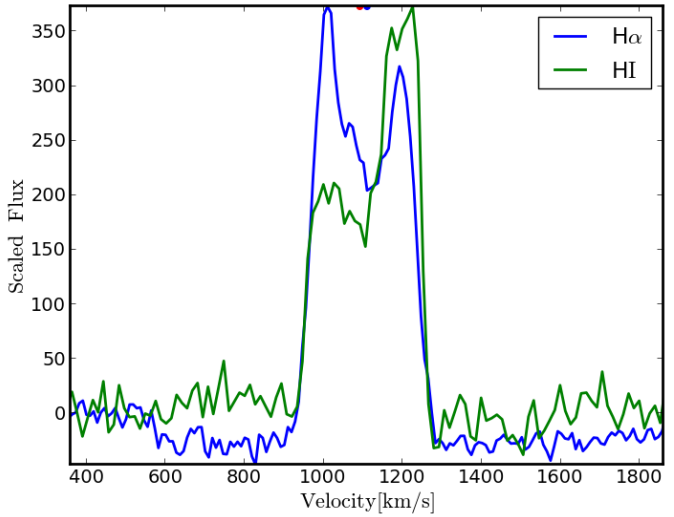
Background Image of M51: Hubble (NASA, ESA)

J1103-23:S1 (NGC3511)

- D= 14.19 Mpc ; M= 9.62 $\log M_{sol}$



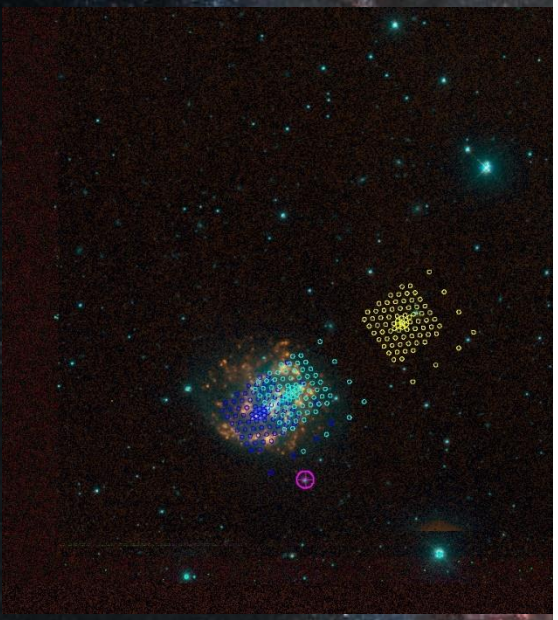


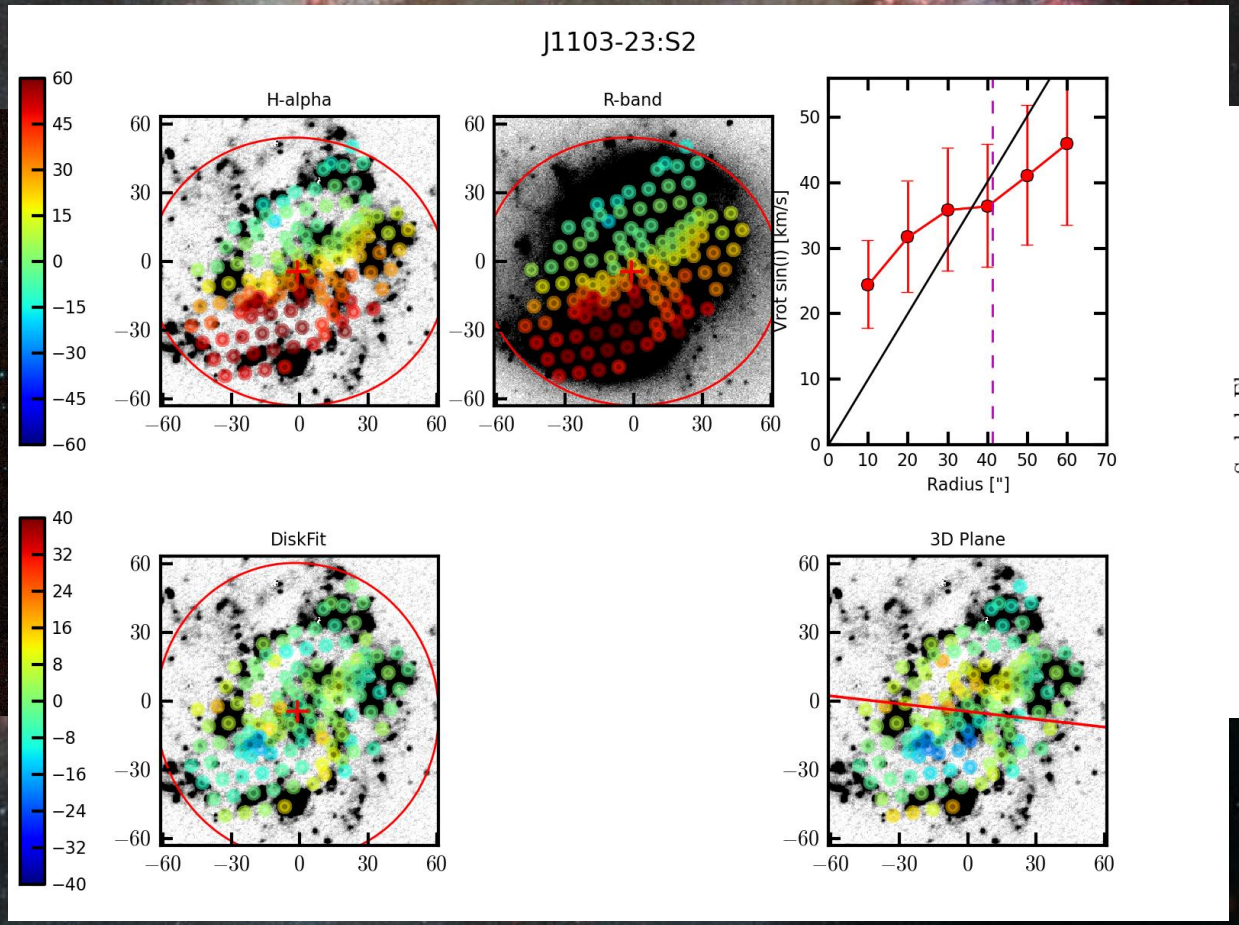


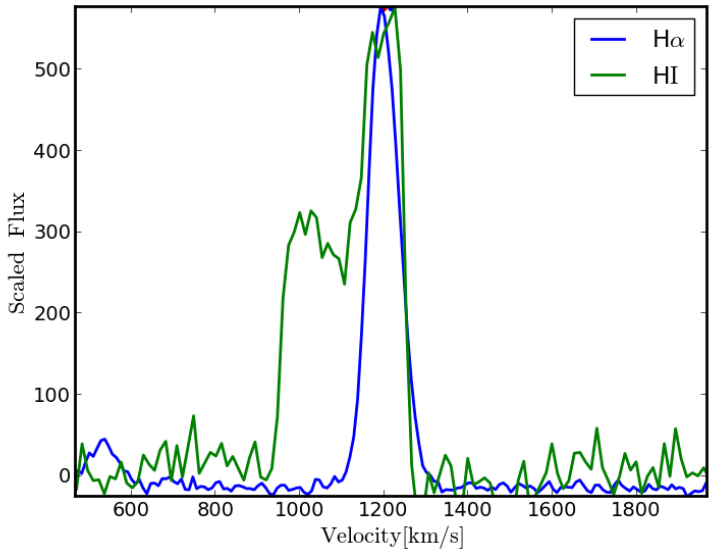
Background Image of M51: Hubble (NASA, ESA)

J1103-23:S2 (NGC3513)

- D= 14.19 Mpc ; M= 9.62 $\log M_{sol}$

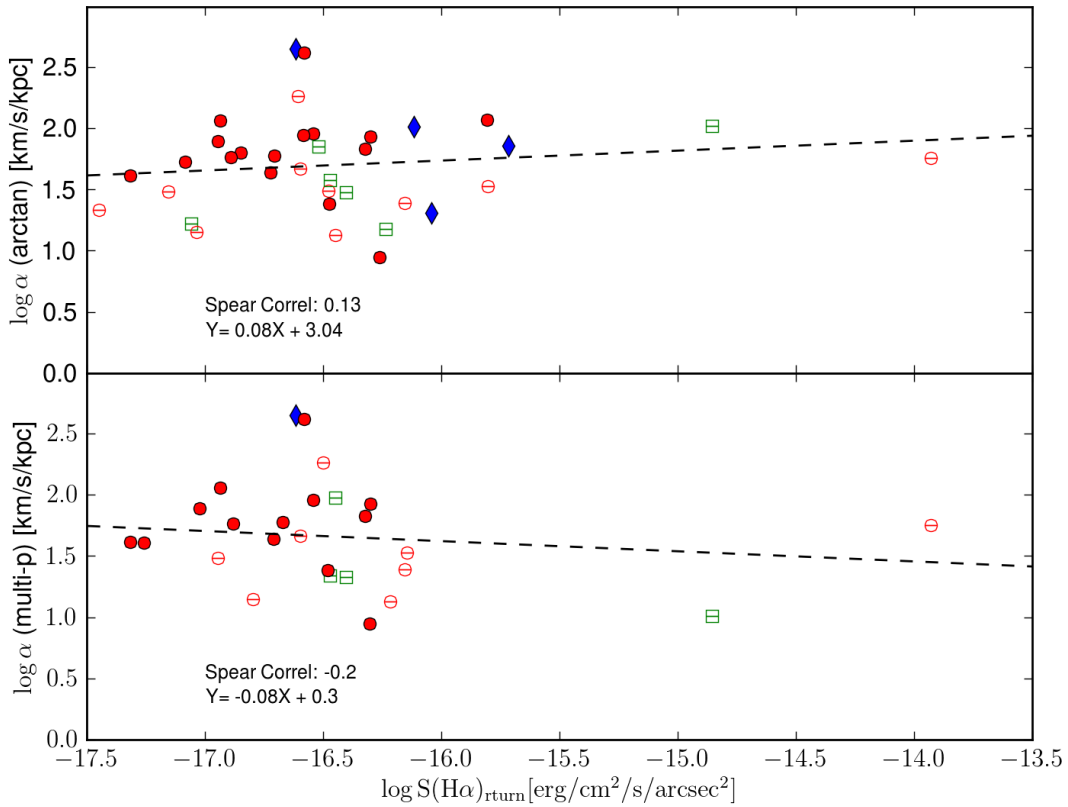


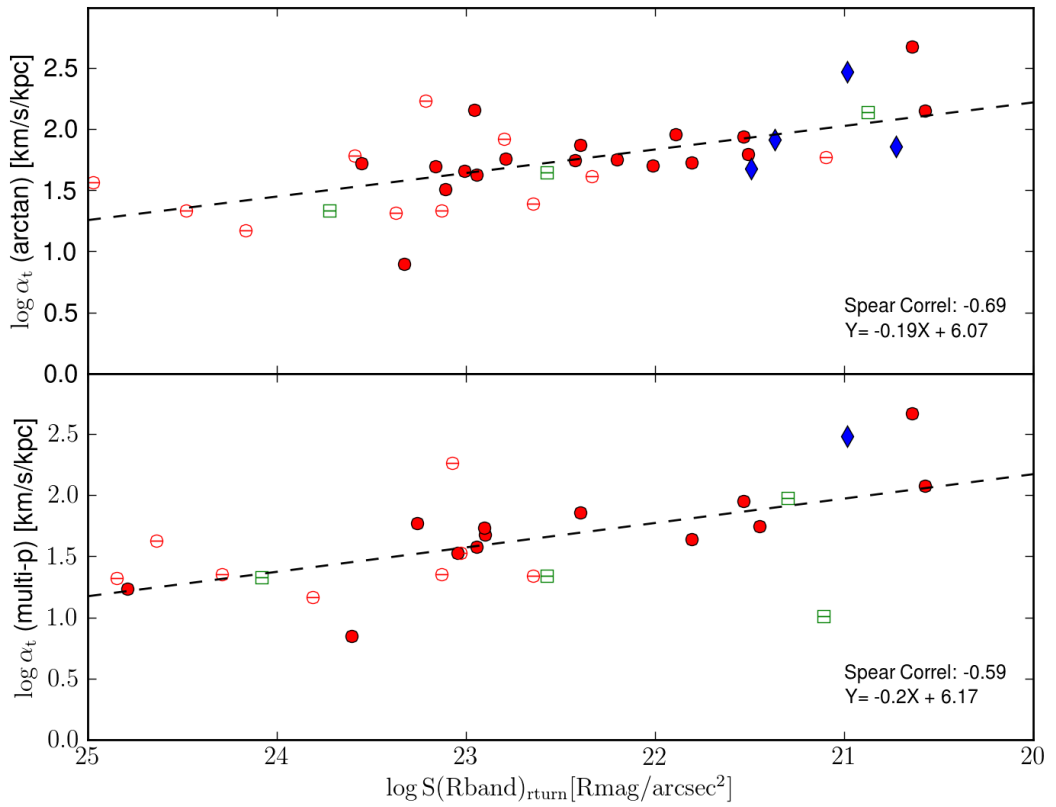




Background Image of M51: Hubble (NASA, ESA)

WIYN SparsePAK





Hα

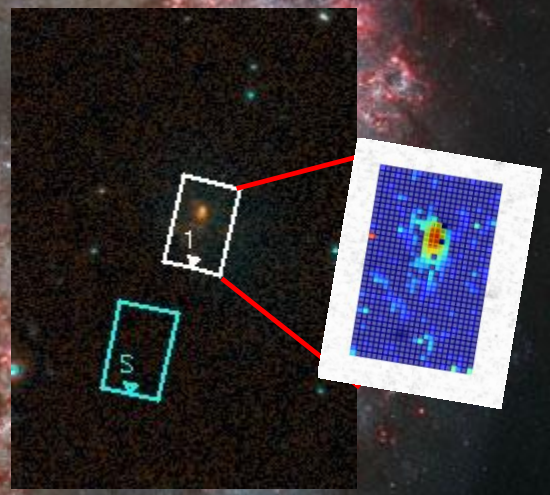
R-Band

Background Image of M51: Hubble (NASA, ESA)

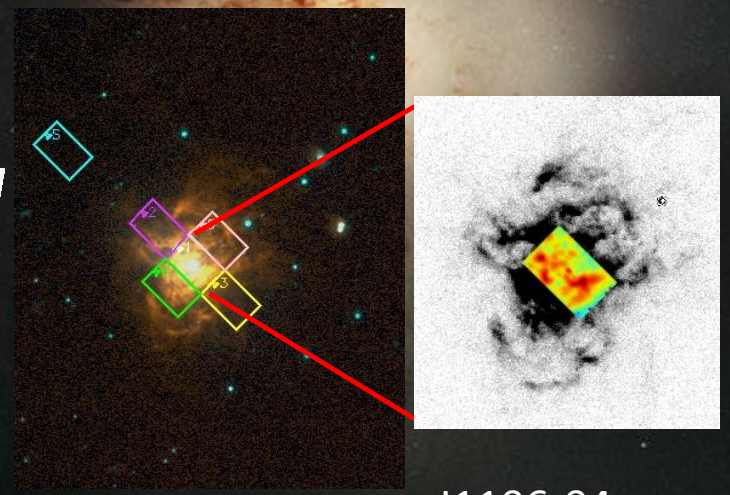
MHONGOOSE WiFeS

- 10 Galaxies
- J0453-53, J0310-39, J1321-31
- J0429-27, J1106-14,
- J2357-32, J0309-41,
- J1254-10a, J2257-41, J0419-54

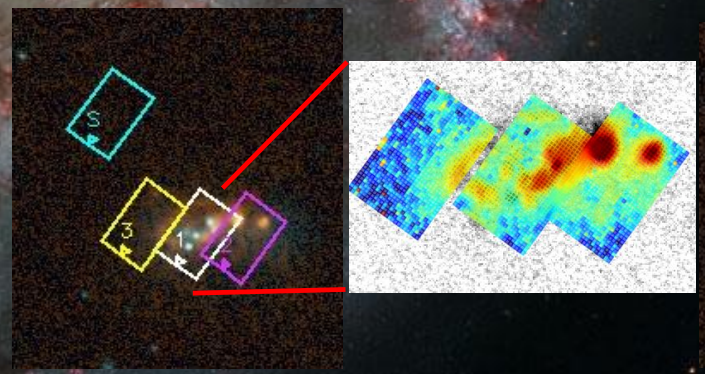
J0310-39



J0454-53

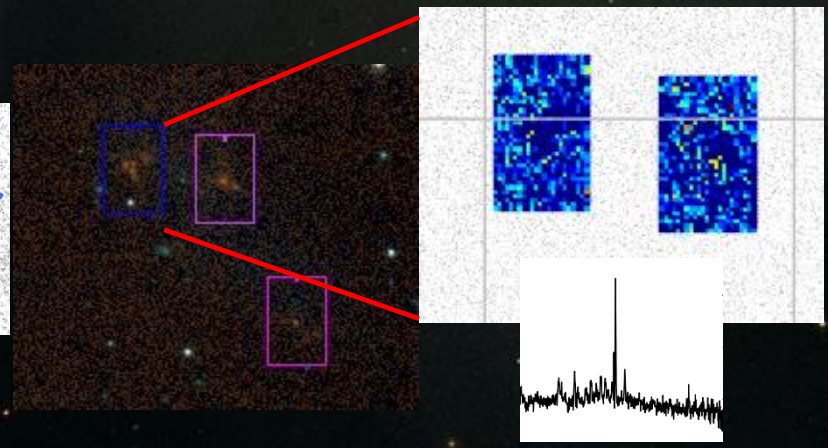


J0429-27



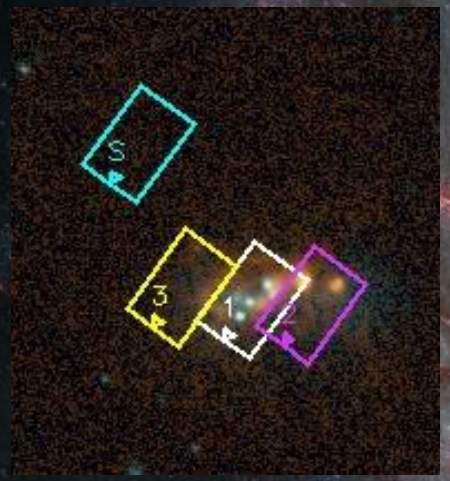
J1321-31

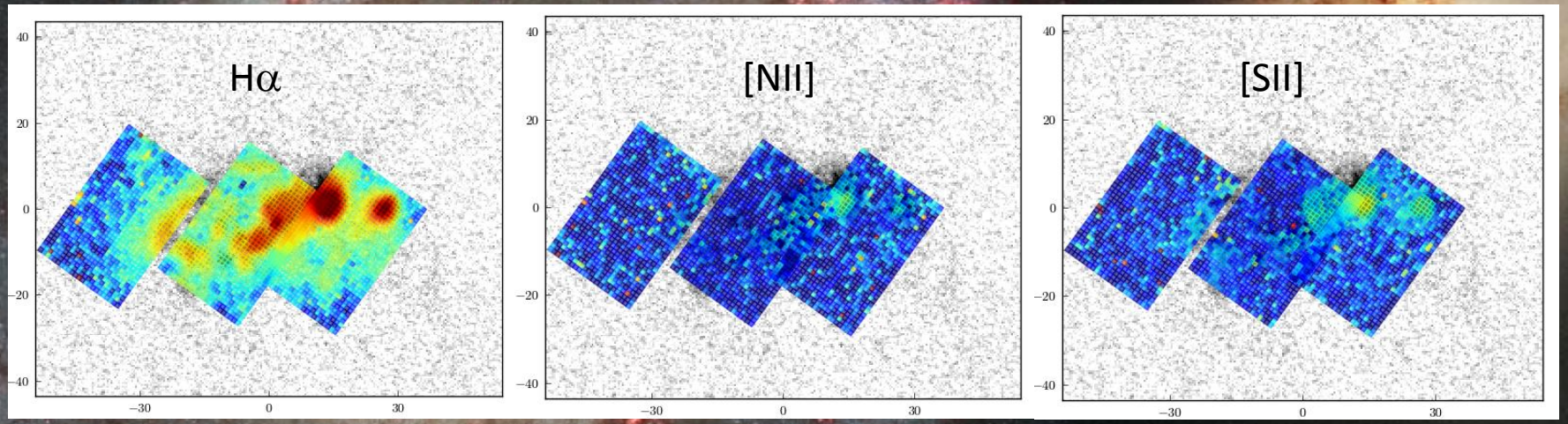
J1106-04

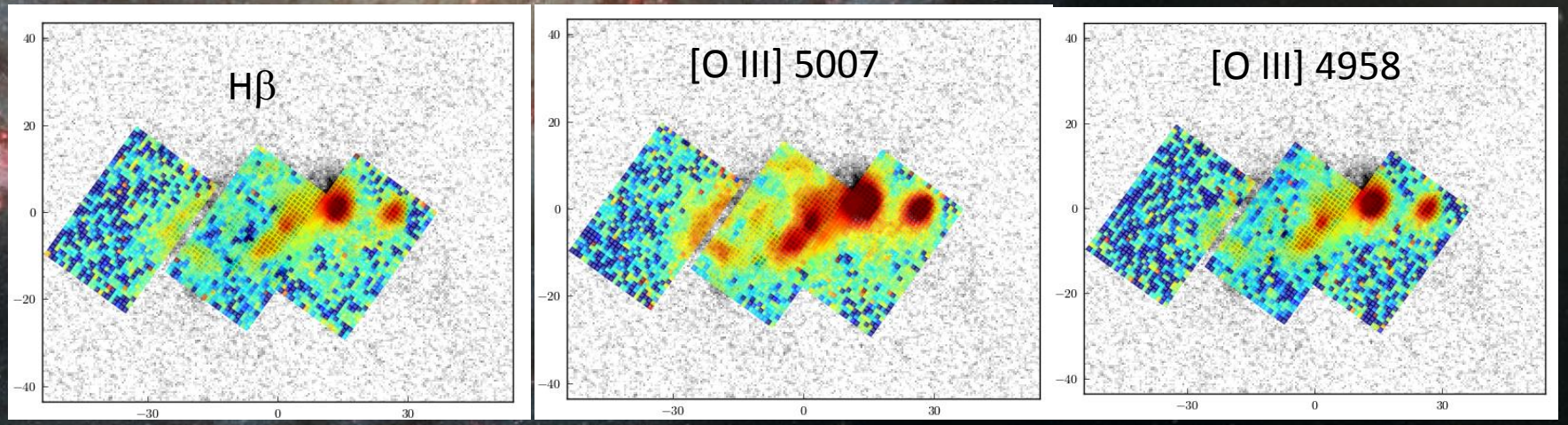


J0429-27

- D= 13.0 Mpc ; M= 8.37 $\log M_{sol}$







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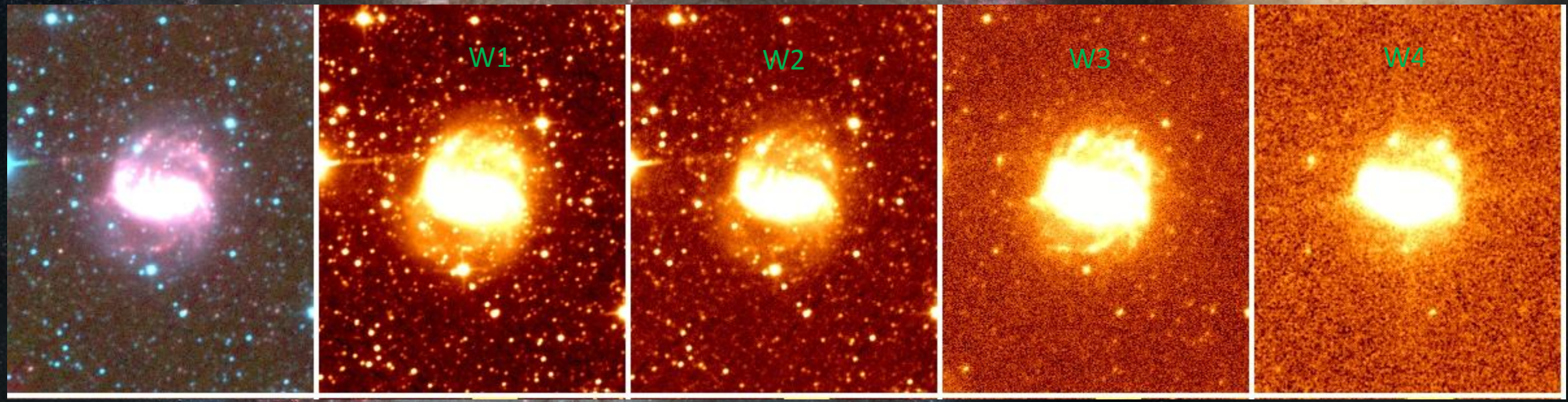
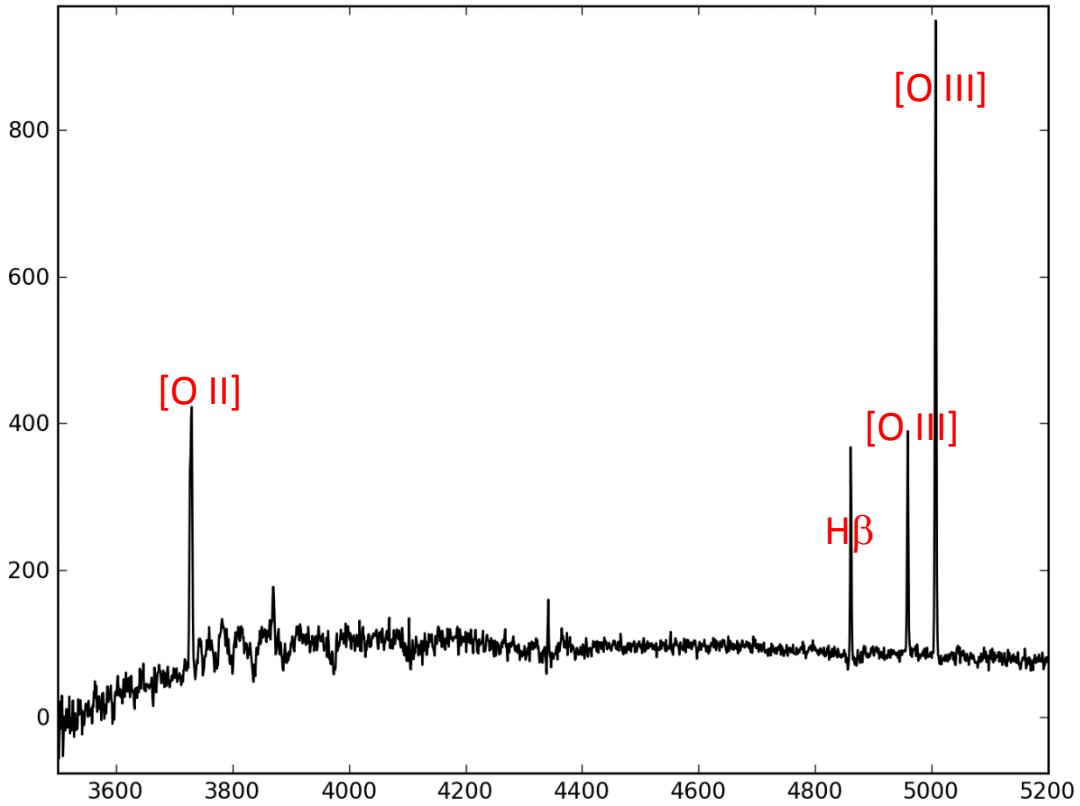
J0429-27

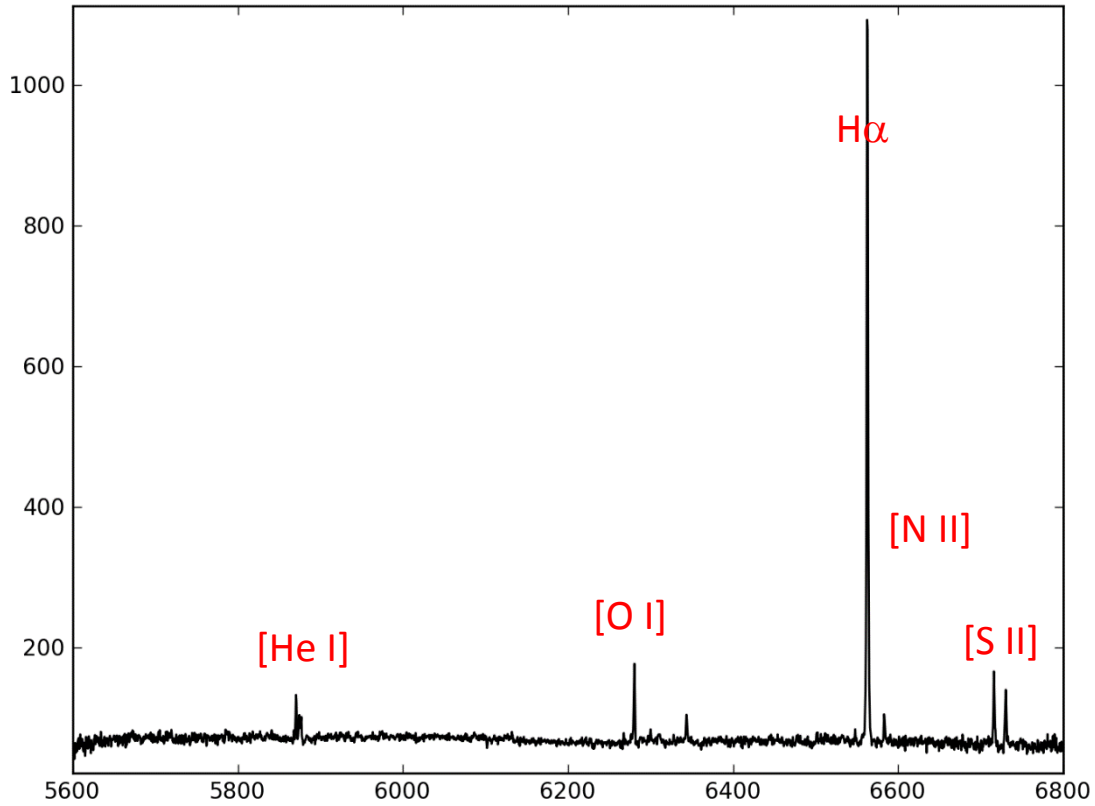
- Combine the WiFeS optical line data with WISE IR



J0429-27

- D= 13.0 Mpc ; M= 8.37 $\log M_{sol}$





Background Image of M51: Hubble (NASA, ESA)

Future

Background Image of M51: Hubble (NASA, ESA)

Future

- IFU observations of the rest of the sample
  - Fill in the gaps of the IFU coverage?
  - Plan for larger galaxies
  - MUSE?
- Reduction and analysis of all the IFU observations
- Other Ancillary data: Molecular gas

Future

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