

# **First Results from the Herschel Reference Survey**

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**&**

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**On behalf of the SPIRE consortium  
(the SPIRE Nearby Galaxy Working group)**

# SPIRE Nearby Galaxies Science Working Group (SAG2) Members

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# Goals of the Survey

- Trace the dust properties (mass, temperature, gas to dust ratio,..) vs. type and luminosity
- Study the role of dust in the physics of the ISM (relation with SFR)
- SED of galaxies of different type and luminosity
- Quantify the dust obscuration
- Dust properties of ellipticals vs. their merging formation history
- Quantify the effects of the environment on the dust properties
- Measure the local dust-mass function
- Provide a reference sample for high-z studies

# Sample selection criteria

- distance range  $15 < \text{dist} < 25$  Mpc (to have a volume limited sample)
- high galactic latitude (to avoid cirrus contamination)
- 2MASS K selected sources (to have a luminosity/mass selection)
  - 1)  $K_{\text{tot}} < 8.7$ : E + S0 (65 objects)
  - 2)  $K_{\text{tot}} < 12$ : Spirals+Im+BCD (to sample the widest possible range in morphological type and luminosity; 258 objects)

**Complete sample of 323 selected galaxies**

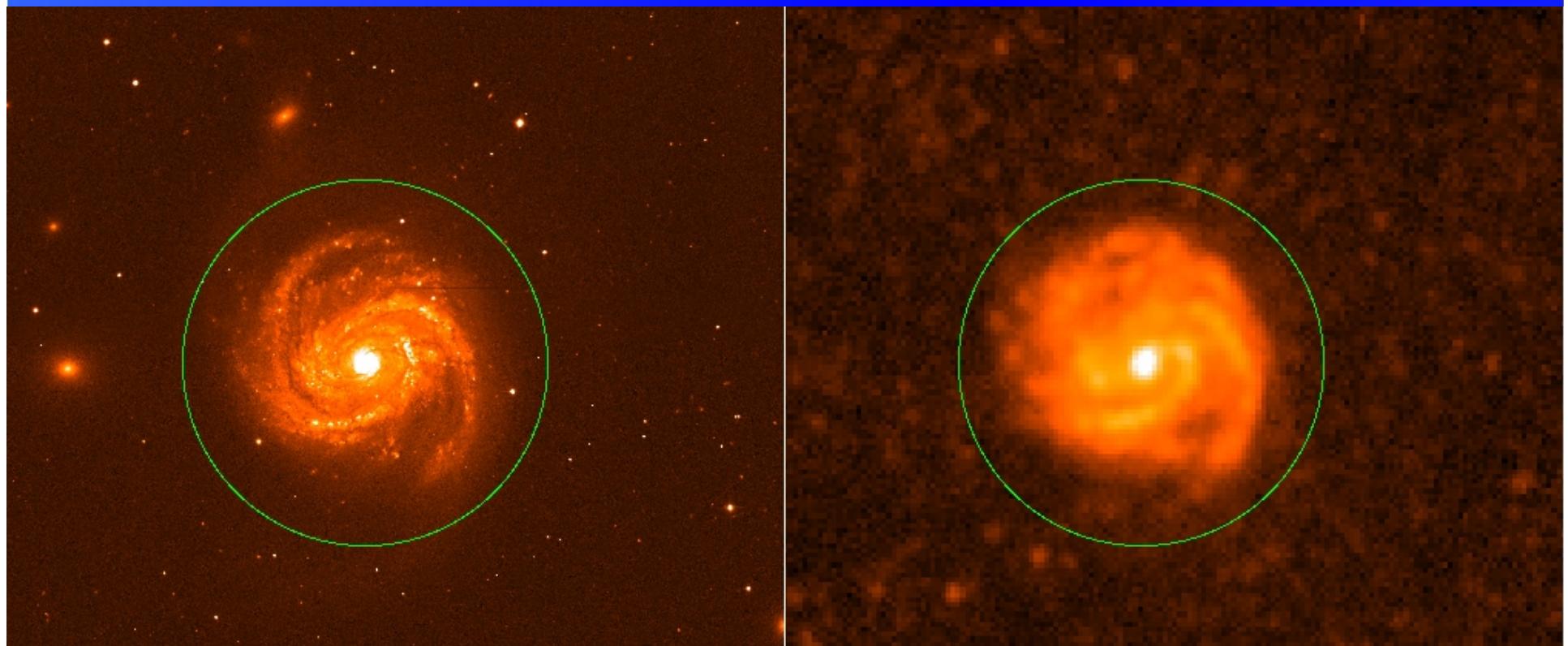
**SDP: observed galaxies**

**Spirals: M99, M100, NGC4532, NGC3683, NGC3982,**

**Ellipticals: NGC 4339, NGC 4435, M86**

**Interacting: NGC 4438, Arp 205**

# Normal spiral galaxy: M100



SDSS g

SPIRE 250 mic

3 scan-map

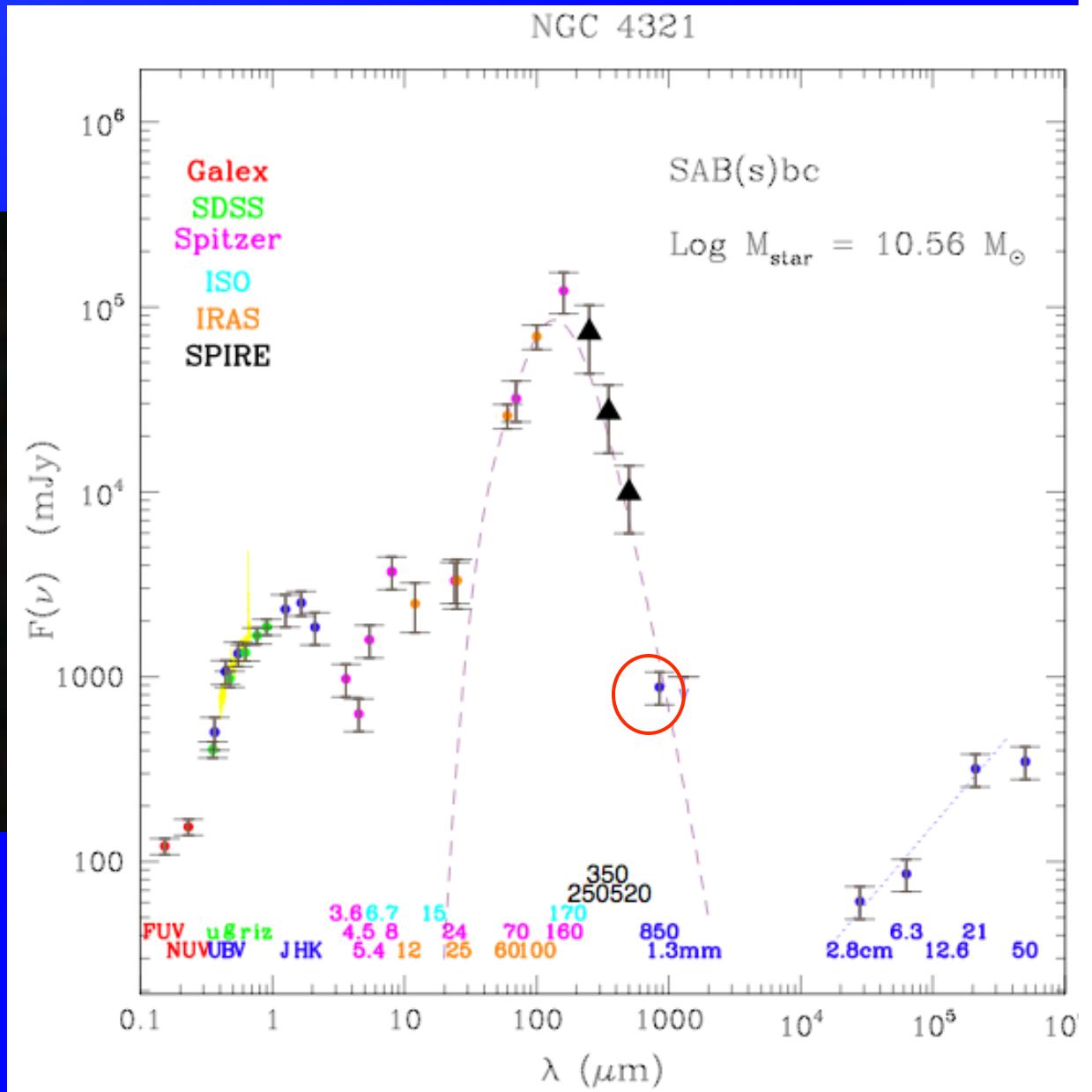
M Pohlen

# Normal spiral galaxy: M100



M. Pohlen

L. Ciesla

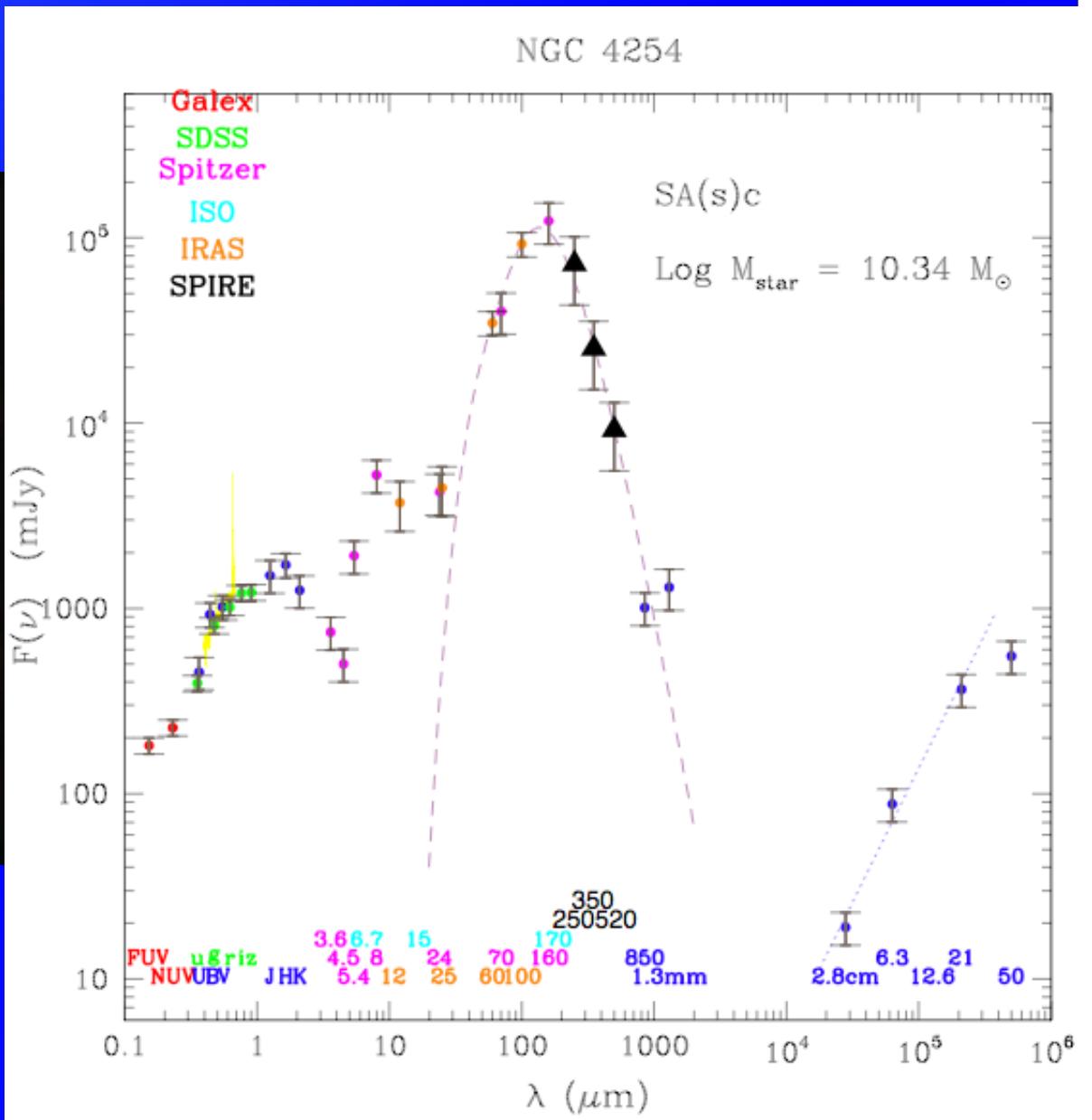


# Normal spiral galaxy: M99



M. Pohlen

L. Ciesla

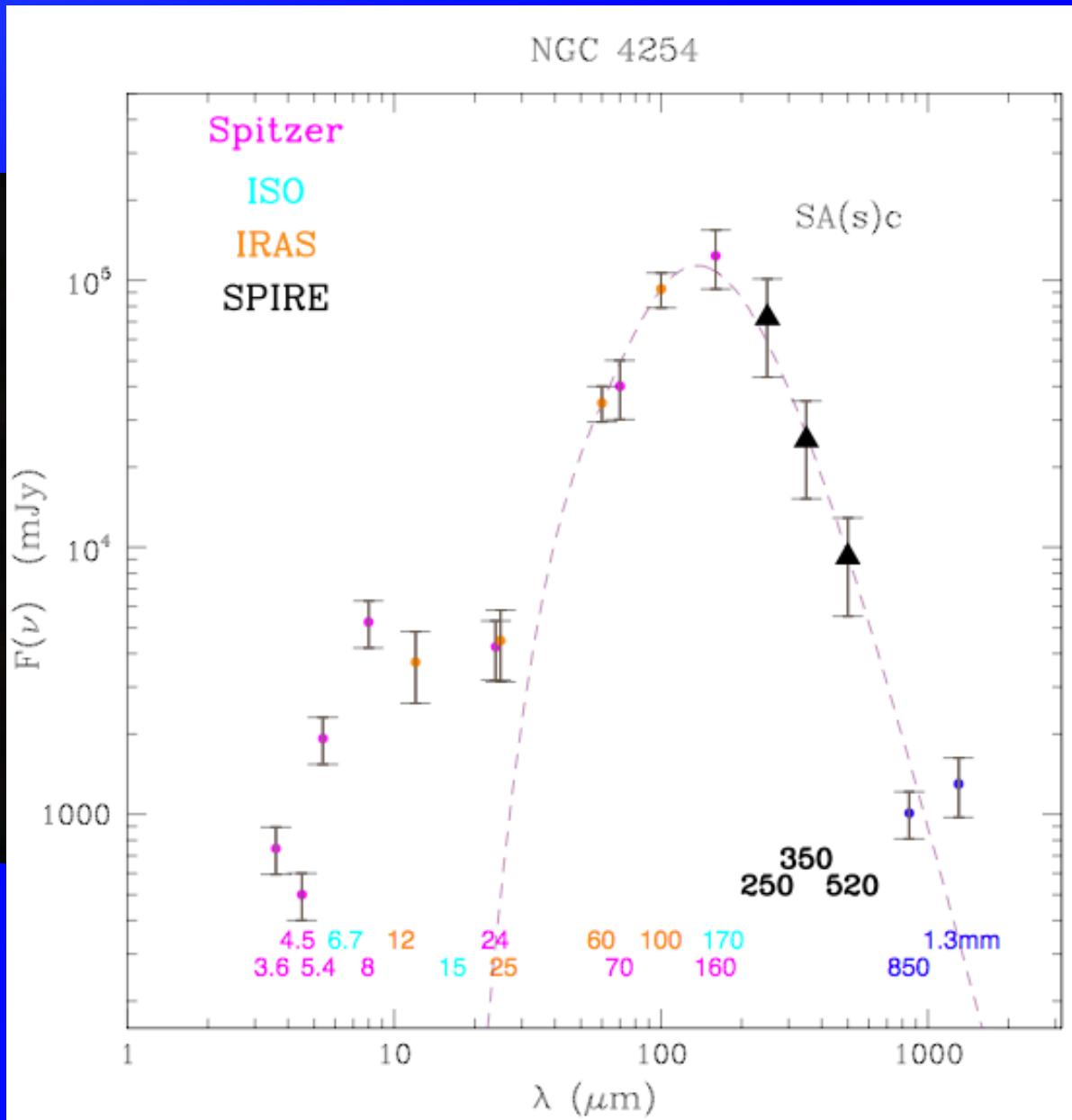


# Normal spiral galaxy: M99

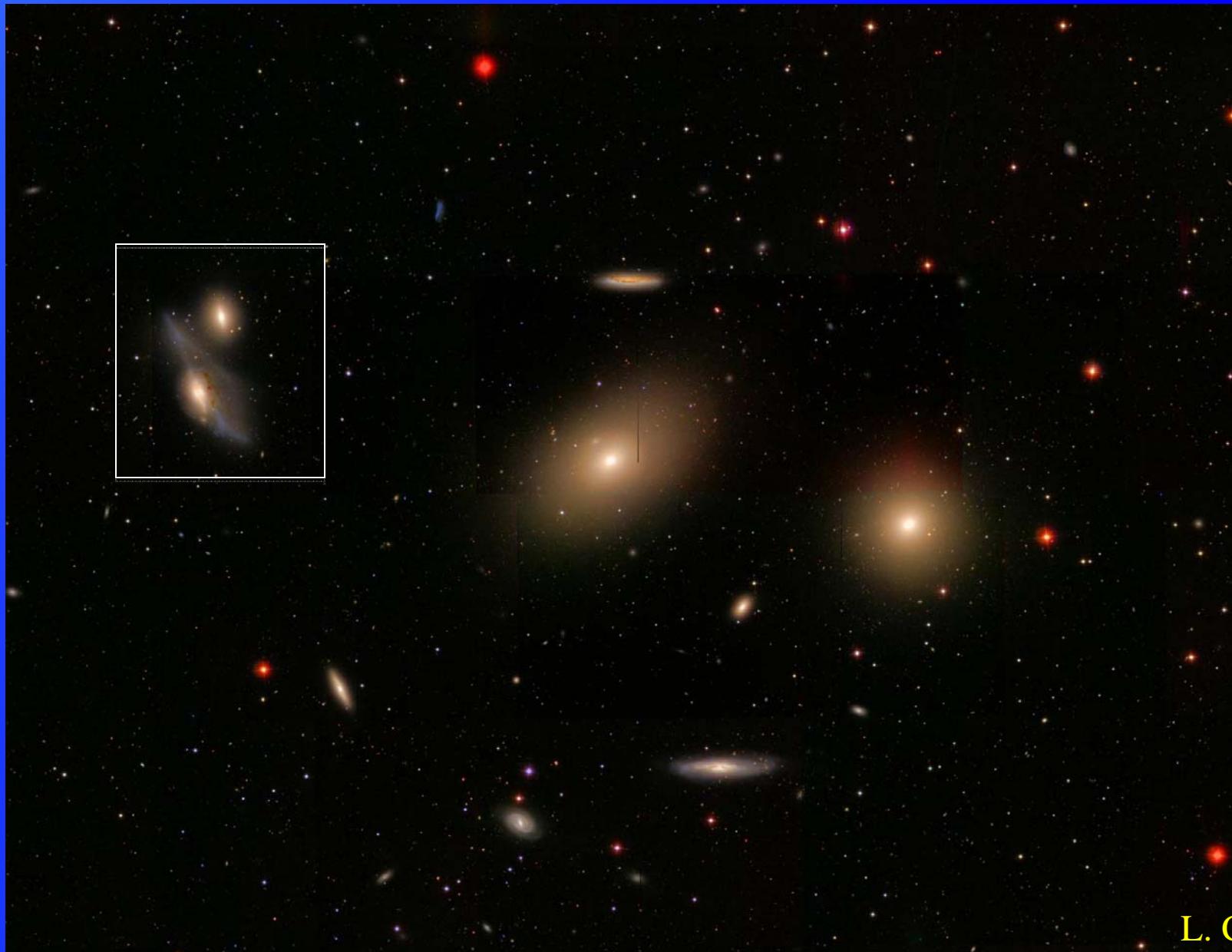


M. Pohlen

L. Ciesla

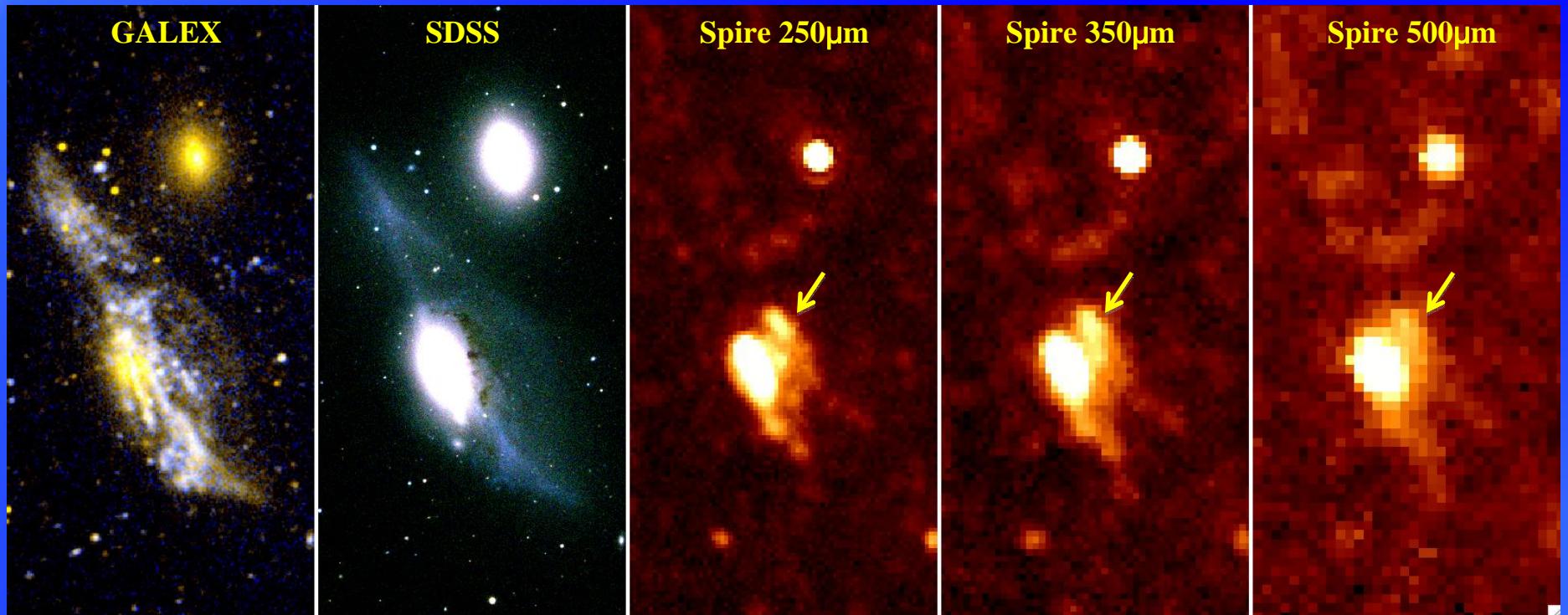


# Dust Stripping in the Virgo Cluster: the case of NGC4438



L. Cortese

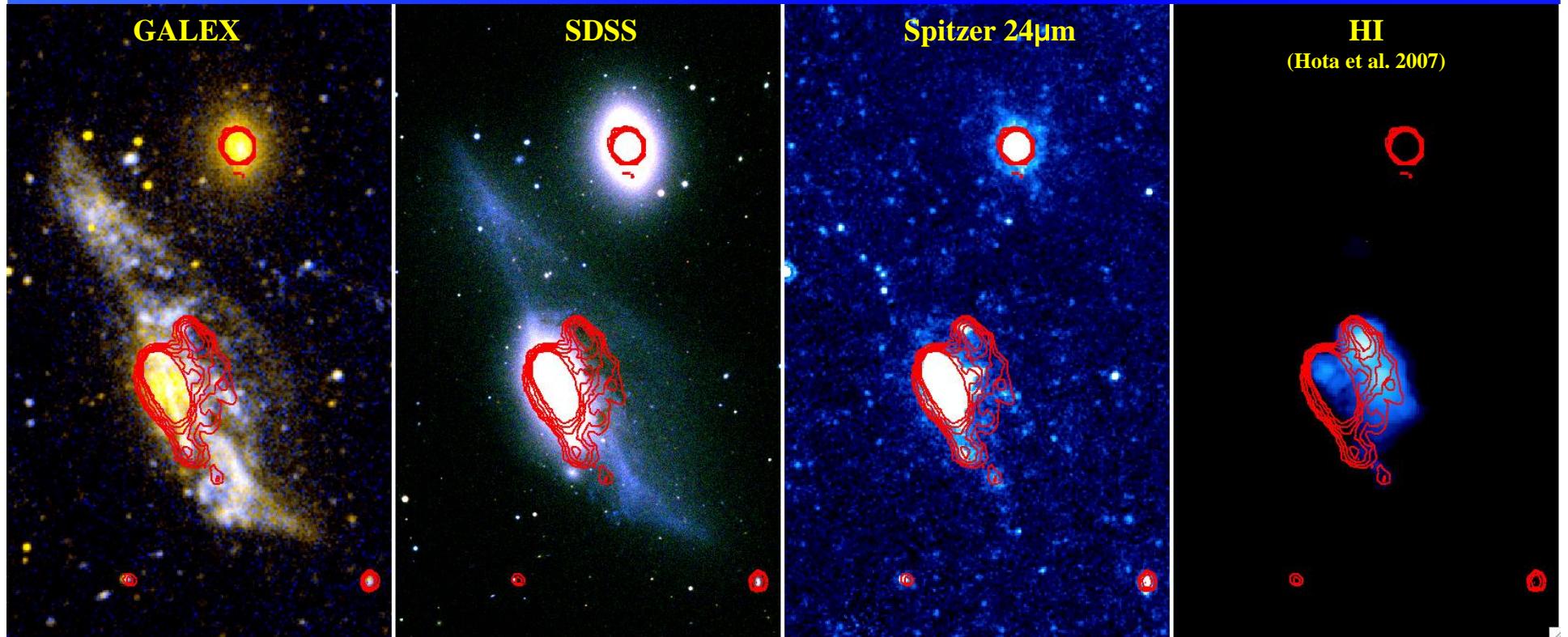
# Dust Stripping in the Virgo Cluster: the case of NGC4438



Extra-planar cold dust, stripped by the cluster environment

# Dust Stripping in the Virgo Cluster: the case of NGC4438

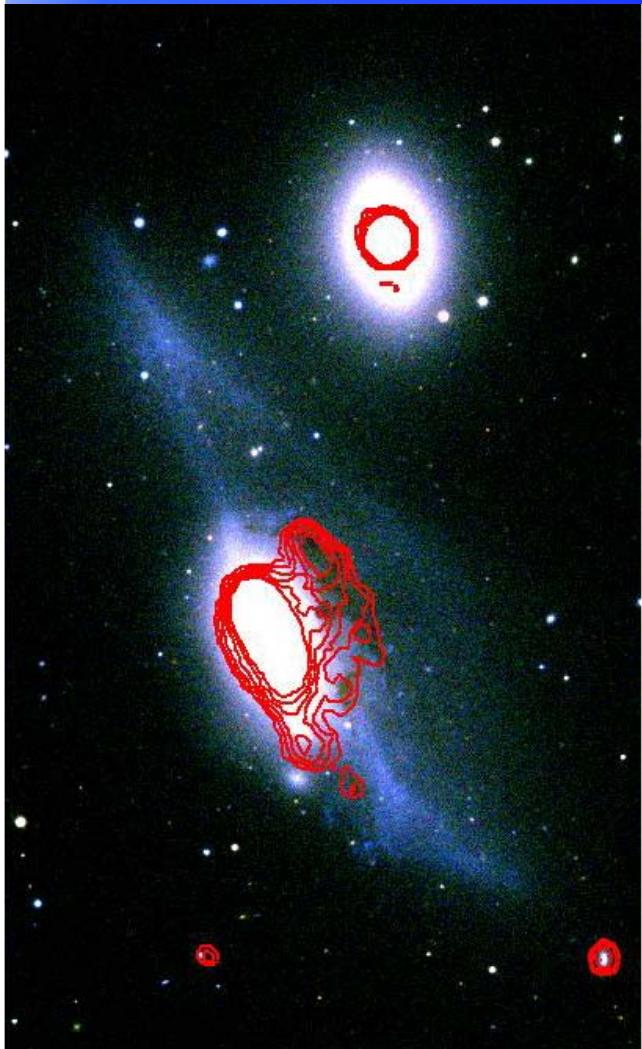
Spire 250 $\mu$ m contours onto:



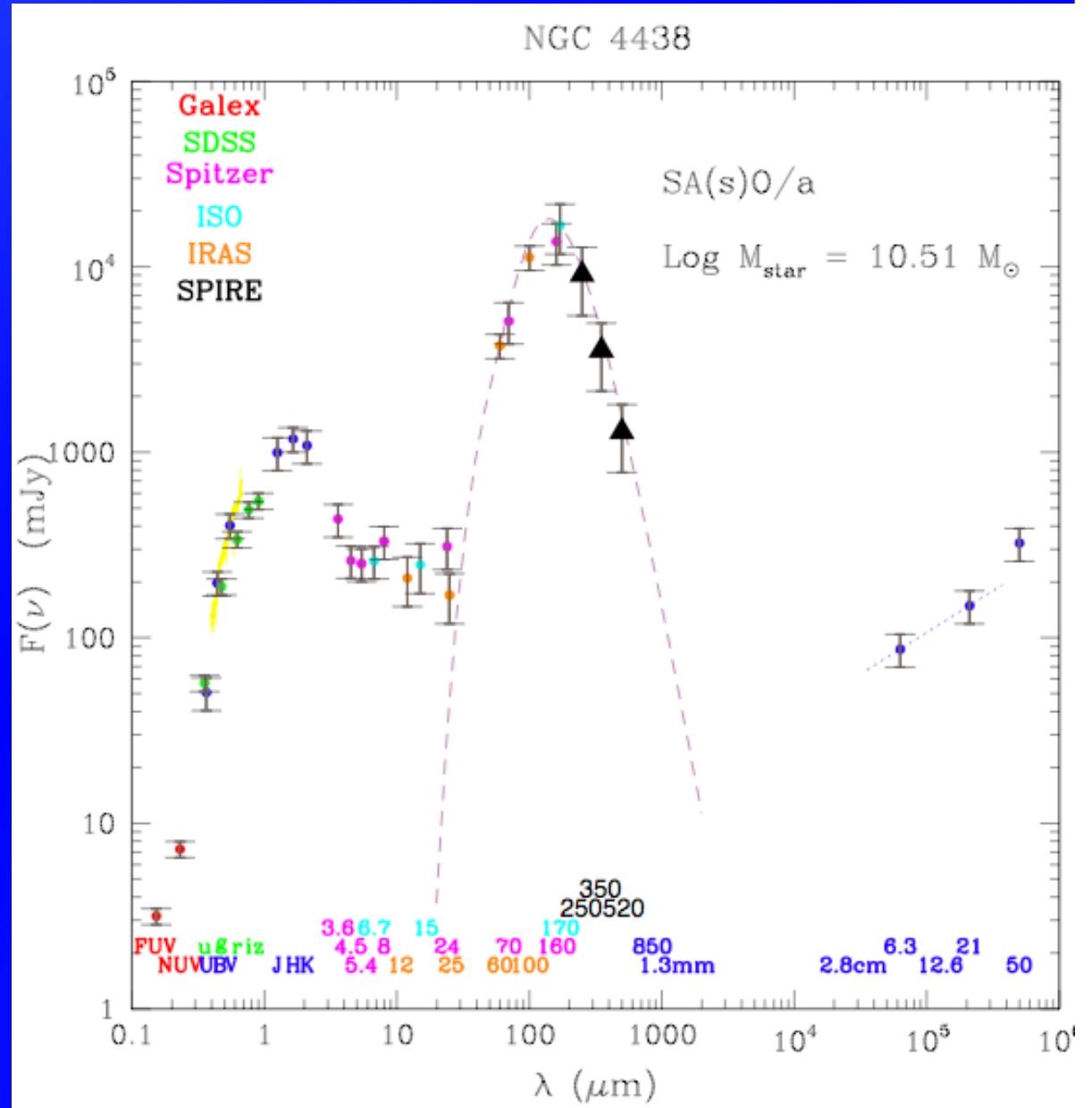
Stripped cold dust associated with stripped hydrogen

L. Cortese

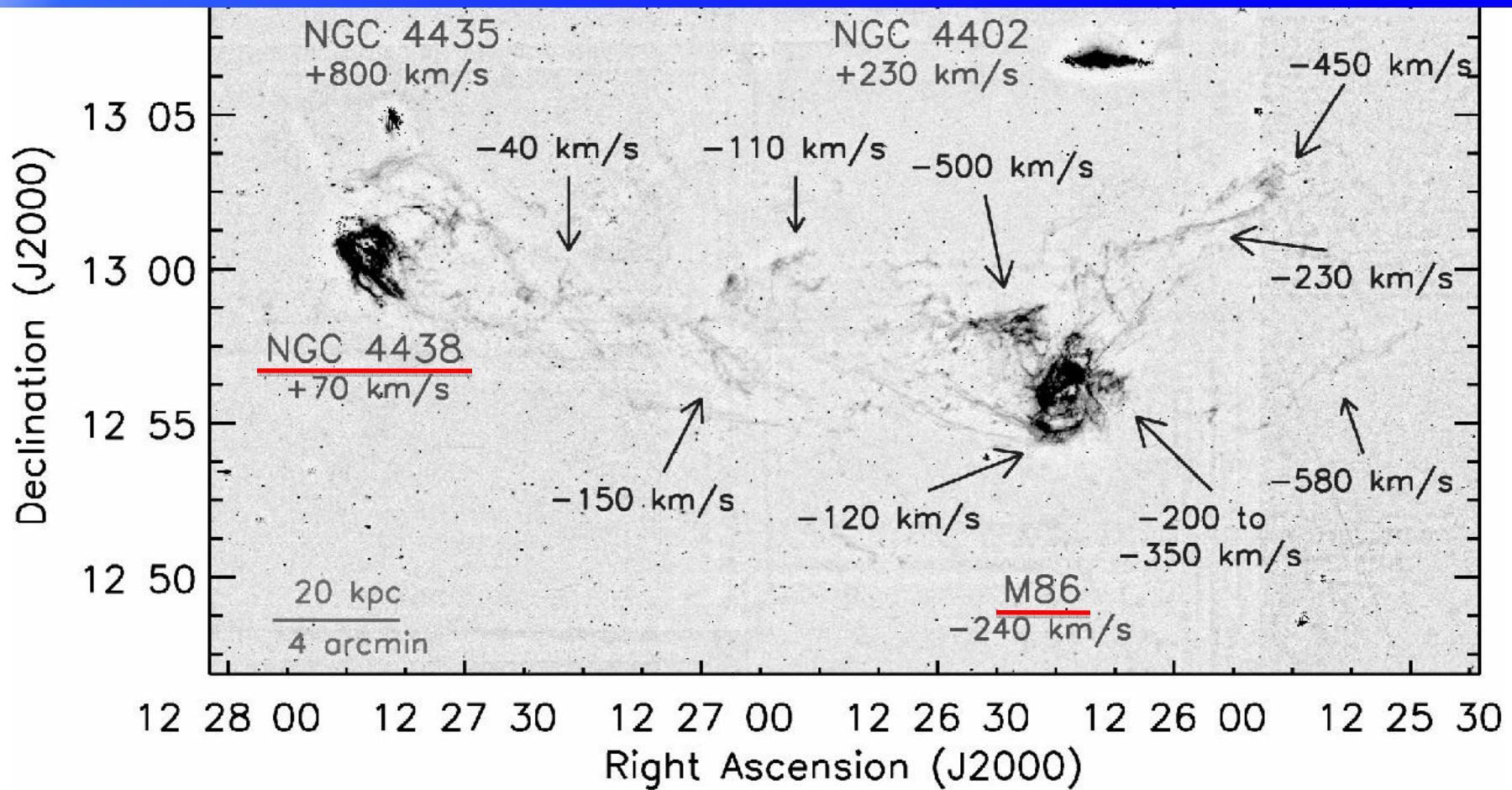
# Interacting galaxy: NGC 4438-4435



L. Ciesla



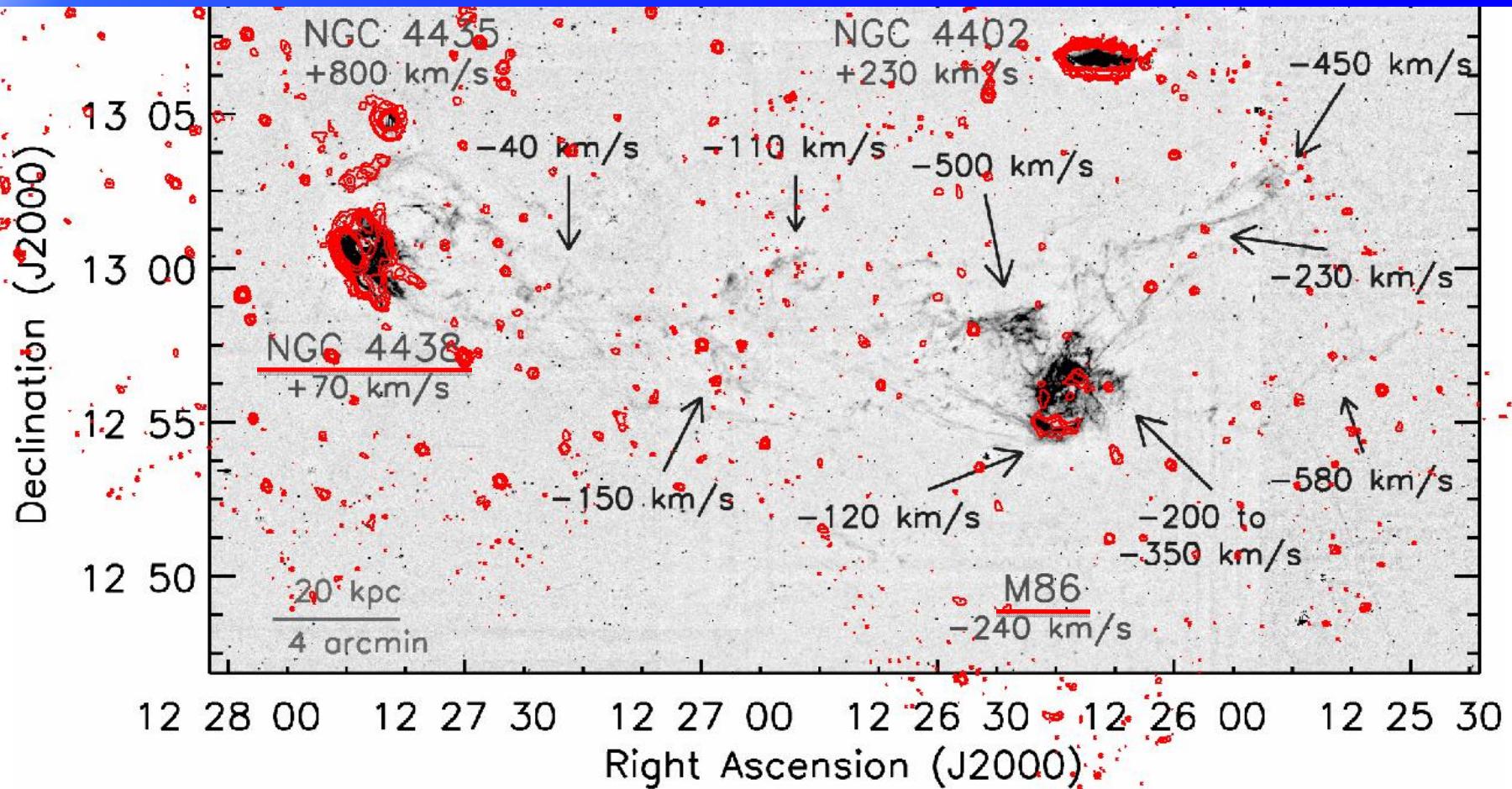
# The Big Picture: NGC4438 & M86



H $\alpha$  view of the NGC4438-M86 system (Kenney et al. 2008)

L. Cortese

# The Big Picture: NGC4438 & M86



H $\alpha$  view of the NGC4438-M86 system (Kenney et al. 2008)

+

Spire 250 $\mu$ m contours (still preliminary!)

L. Cortese

# M86

NGC4435



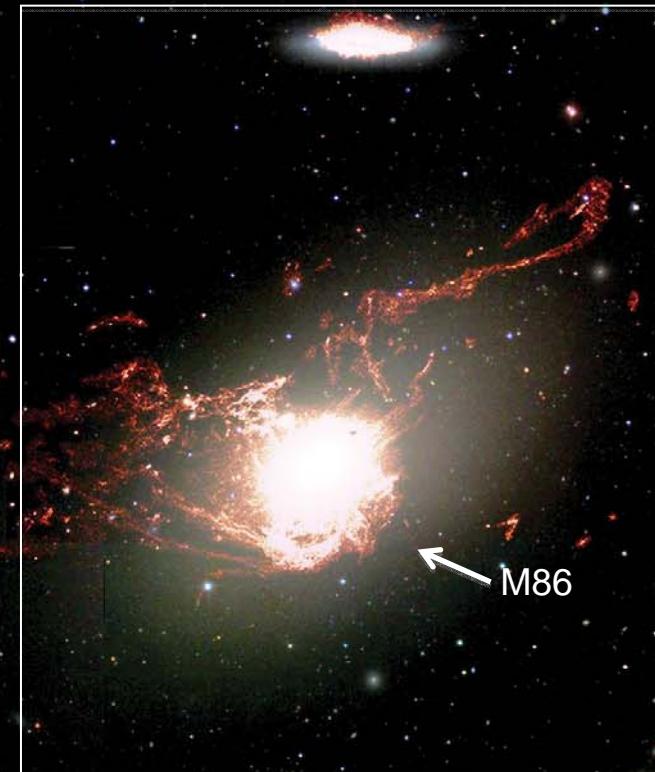
NGC4438



NGC4402



M86

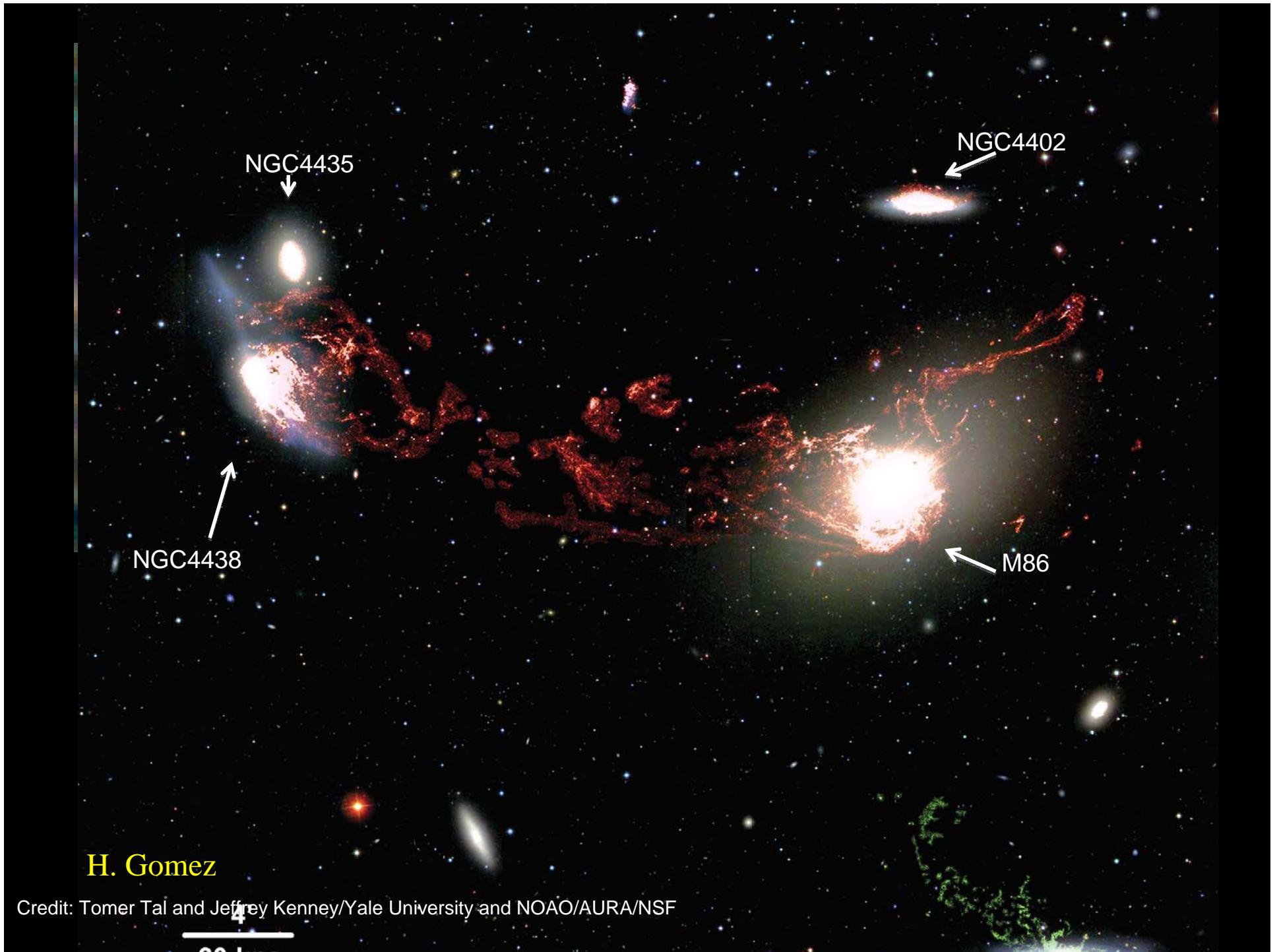


H. Gomez

Credit: Tomer Tal and Jeffrey Kenney/Yale University and NOAO/AURA/NSF

4'

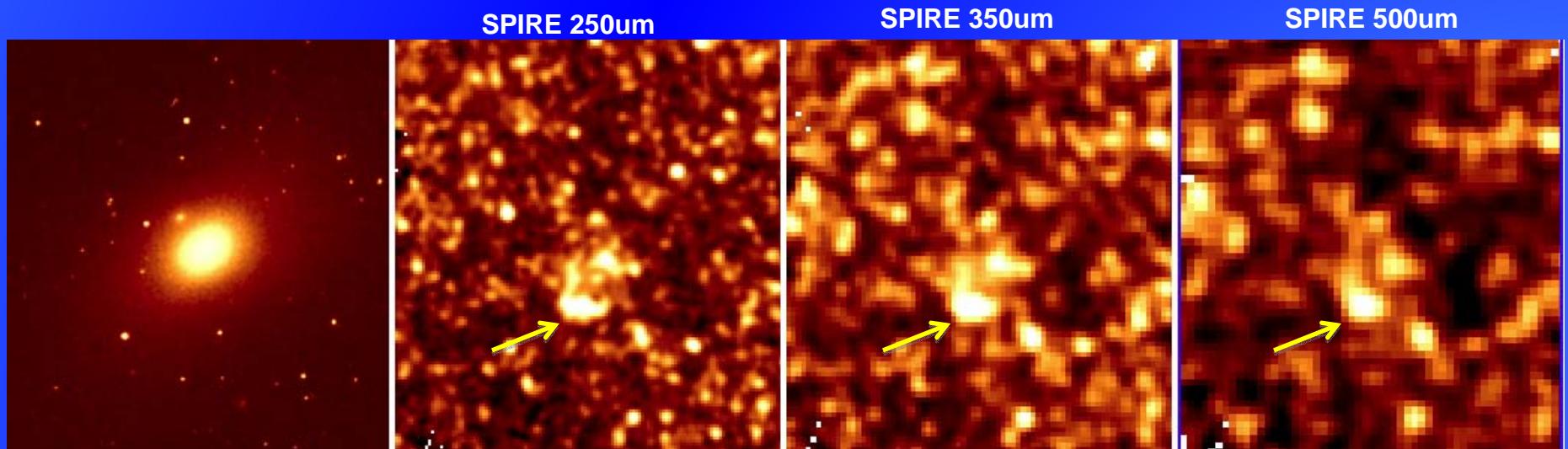
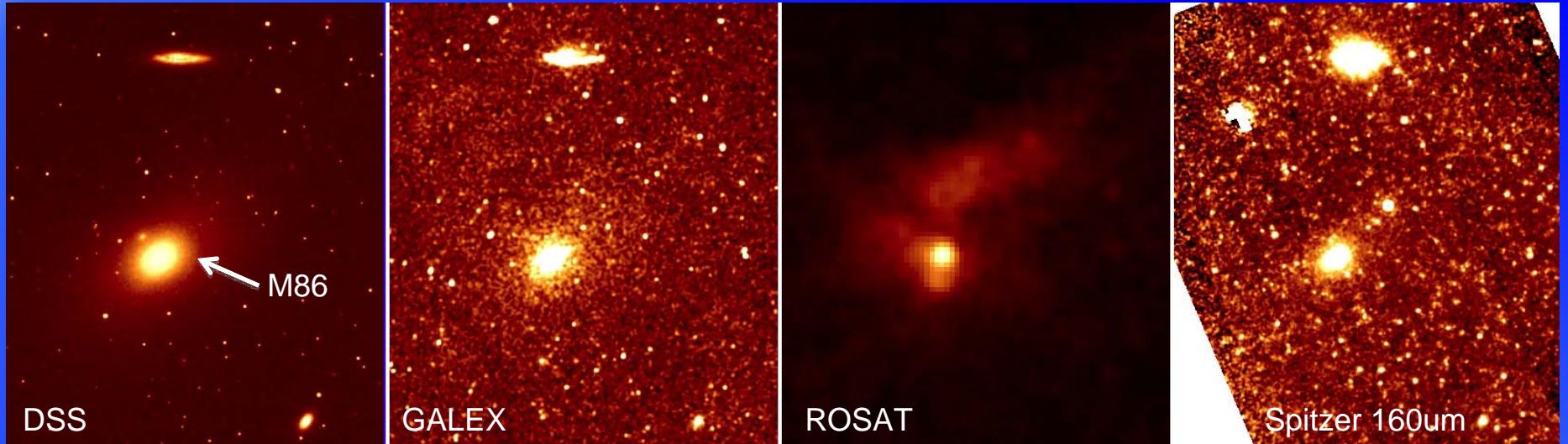




H. Gomez

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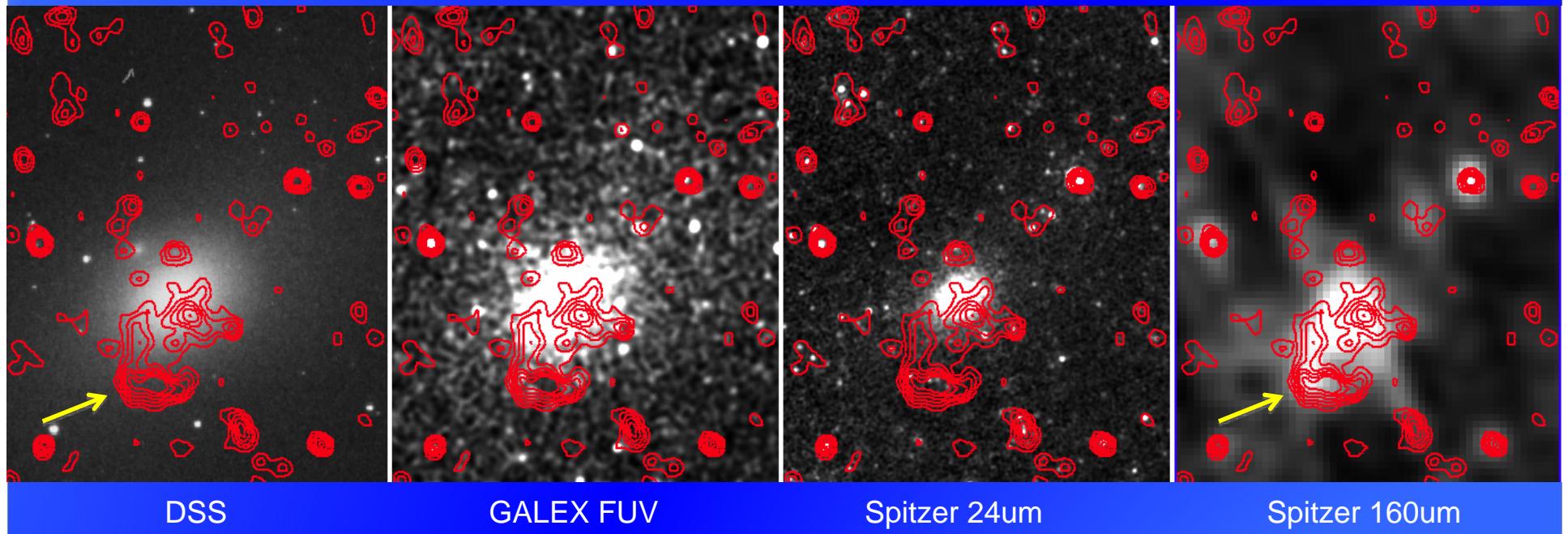
# Dust stripping in Virgo Cluster: the giant elliptical M86



8 scan-map

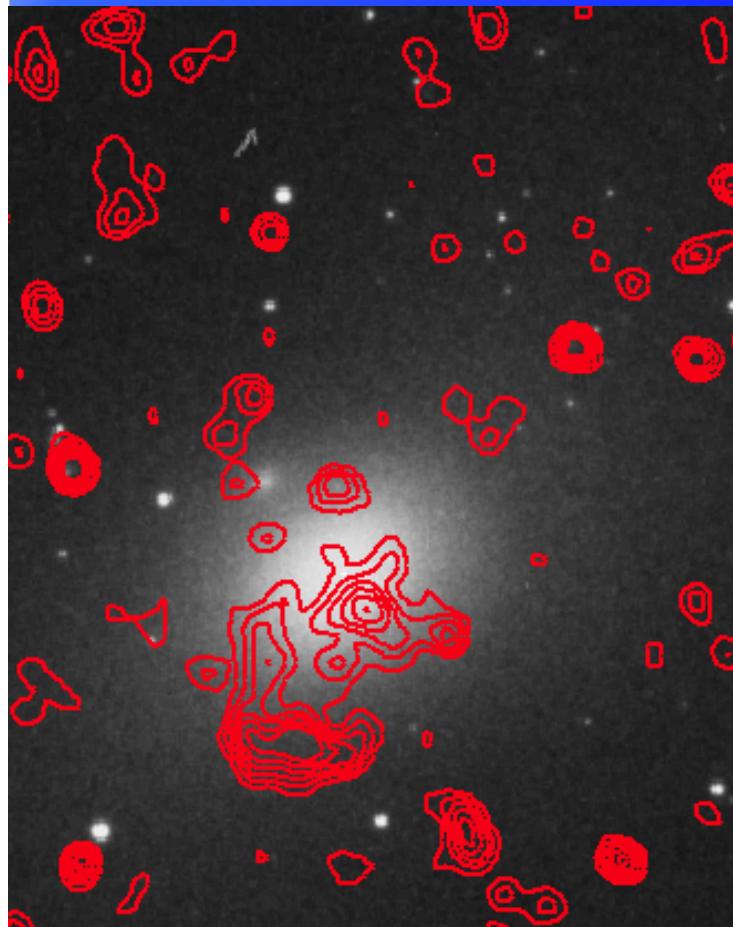
H. Gomez

# Dust stripping in Virgo Cluster: the giant elliptical M86



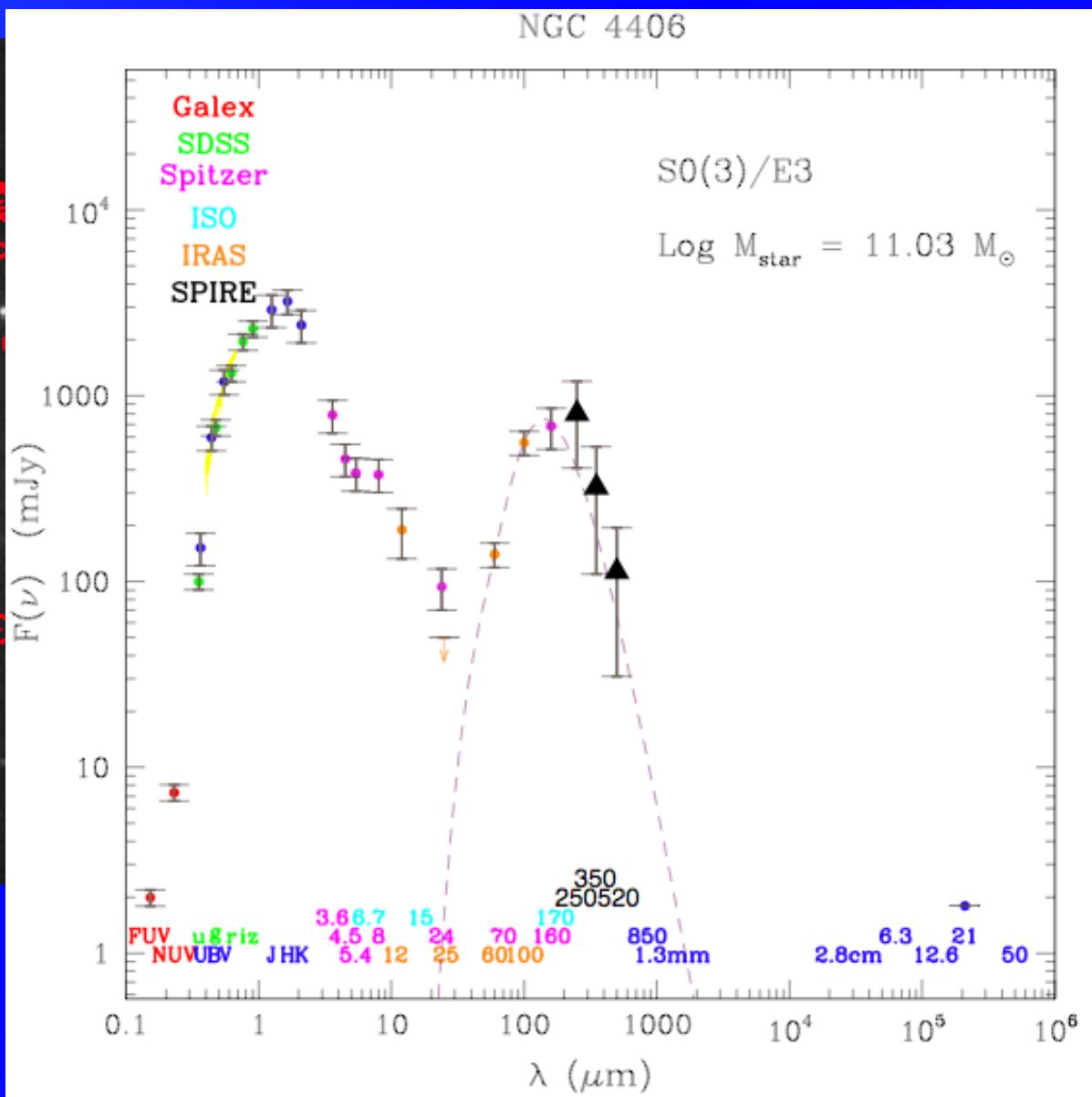
H. Gomez

# Elliptical galaxy: M86



H. Gomez

L. Ciesla



# Expected results

- Many interesting results will be obtained from the study of single galaxies
- Statistical studies need the completion of the survey
- Environmental studies from the comparison with HeViCS