



National Radio Astronomy Observatory

*ALMA Massive Star Formation Workshop
September 24, 2008*

Welcome & Scientific Impressions

K. Y. Lo





Atacama Large Millimeter/Submillimeter Array

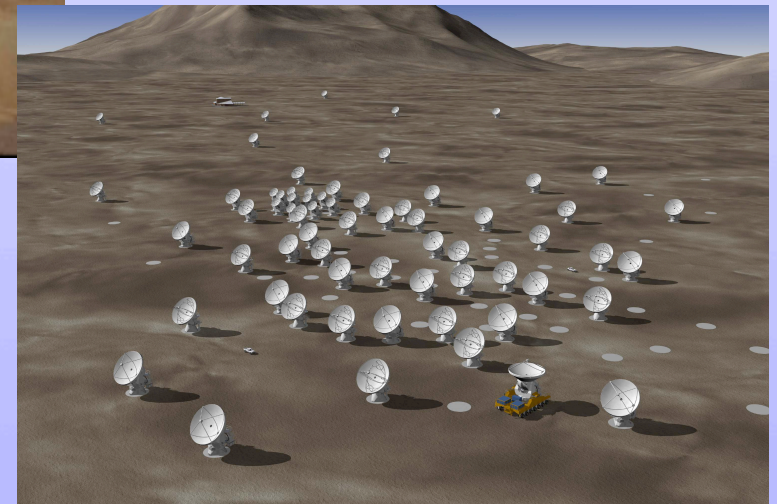
International astronomy facility,
a partnership of Europe, North America and East Asia,
in cooperation with Chile



Plano Chajnantor
Northern Chile
at 5000m elevation

Operational 2013
(Early Science in 2010)

$50 \times 12\text{-m}$ telescopes
+
ACA: $12 \times 7\text{-m} + 4 \times 12\text{-m}$



North American ALMA Science Center

Headed by Carole Lonsdale on 1 October 2008

- Portal for NA astronomers to ALMA
- User Support
- Schools

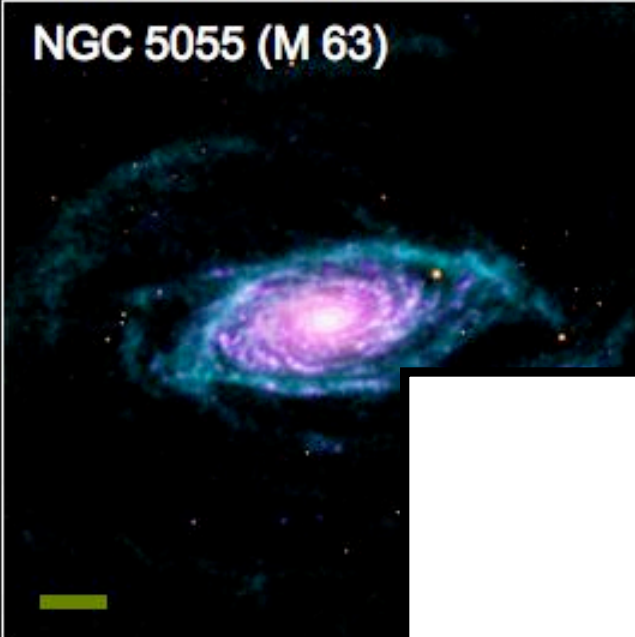


NRAO HQ
Charlottesville, VA

Search for new
Head of NAASC₃

Spiral Galaxies in THINGS — The HI Nearby Galaxy Survey

NGC 5055 (M 63)



NGC 628 (M 74)

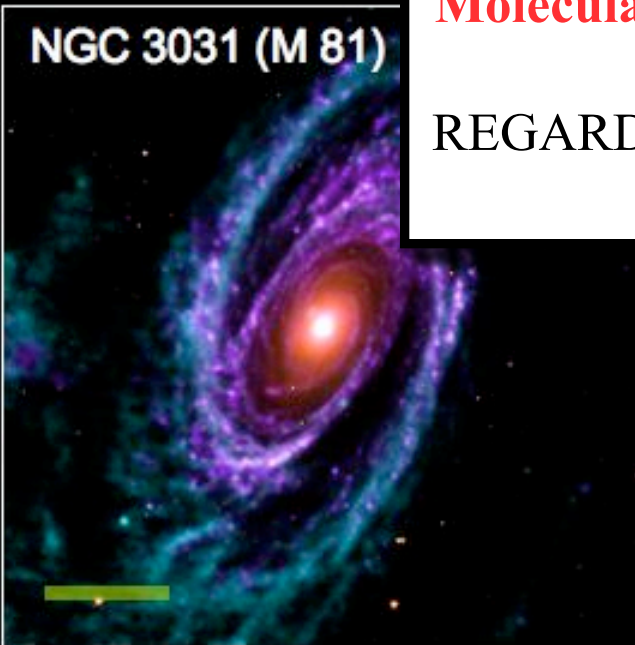


Leroy et al, AJ 2008
Important finding:

Molecular clouds form Stars at fixed Efficiency

REGARDLESS of Local Conditions, Galaxy Type

NGC 3031 (M 81)



g:
omic Hydrogen
ge Array)
Space Telescope)
tion
& Spitzer)
light years



Image credits:
VLA THINGS: Walter et al. 08
Spitzer SINGS: Kennicutt et al. 03
GALEX NGS: Gil de Paz et al. 07

Implications of fixed SFE(H₂)

- SFR in different environments depends on the formation of molecular clouds

- Do starbursts have the same fixed SFE(H₂)?

⇒

- Understanding SF can be factored into 2 independent problems:
 1. Why is SFE(H₂) fixed in molecular clouds?
 2. How are molecular clouds formed?