The project

- Thorough ANalysis of radio Galaxies Observations.

- International collaboration project, PIs: Stephane Leon (ALMA/ESO), Breezy Ocaña Flaquer (CAUP, Porto).

- The Goal: To understand the fueling of AGN in powerful Radio Galaxies
The sample

- Sub-Samples:

```
Log(P) Median = 24.39
Std = 0.98
MH2 Median = 3.59 \times 10^3
Std = 28.63 \times 10^3
CO detections: 30
```
Low z Sample (LzS):

- 52 Radio Galaxies
- $0 < z < 0.1$
The sample

- Sub-Samples:
  - Low z Sample (LzS):
    - 52 Radio Galaxies
    - $0 < z < 0.1$
Introduction

- **Medium z Sample (MzS):**
  - 49 Radio Galaxies
  - $0.3 < z < 1$
The sample

- **Sub-Samples:**
  - **Low z Sample (LzS):**
    - 52 Radio Galaxies
    - $0 < z < 0.1$
  - **Medium z Sample (MzS):**
    - 49 Radio Galaxies
    - $0.3 < z < 1$
So far ... 

- We have observed the 52 galaxies of the low z sample with the IRAM 30m telescope.
- Compare the results with the available FIR data and all that is in an already published work. (Ocaña Flaquer, et al. 2010)
- We have collected all available spectra from SDSS for the LzS
- Finally we have recently collected data for CO using IRAM-30m Telescope for a total of 22 sources for the MzS
Molecular gas mass

$<M_\odot> = 2.2 \times 10^8$
\[ \langle M_\odot \rangle = 2.2 \times 10^8 \]
MzS - CO detections

RA: 16:09:11.00 DEC: 17:56:18.0 Eq 2000.0 Offs: +0.0 +0.0
Unknown tau: 0.109 Tsys: 198. Time: 78. min El: 0.0
N: 103 Io: 93.8487 Vo: 0.000 Dv: -68.37 LSR
F0: 171276.000 Dr: 39.06 Fl: 156063.069
viernes 17 de enero de 14
Now
TANGO has
¡ALMA!

viernes 17 de enero de 14
The M87 Jet

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Confirm (or reject) the presence of Nuclear Molecular gas disk, or some large organize structure.

- Study the angular momentum and dynamics of the molecular gas.
- Study the physical condition of the SF in the center of M87

Astrobigne - Arcetri
We are also planning to use the capabilities of the LBT to observe some particularly interesting sources within the TANGO LzS (in collaboration with E. Sani and L. Magrini). By studying at high precision their Warm Ionized Medium using LBT.
3CR 264

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RA: 11:45:05.049  DEC: 19:36:23.40  (2000.0)  Offs: 0.0  0.0  Eq
Unknown  Tau: 0.1112  Tsys: 158.0  Time: 482.7  El: 51.19
N: 63  l0: 32.06  V0: 0.000  Dv: -21.26  LSR
F0: 112825.000  Df: 8.000  F: 115820.714

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STARLIGHT applied to an SDSS Spectra

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STARLIGHT applied to an SDSS Spectra

$3\sigma = 0.8273$  \( (3421) \)

adev = 1.672 $\% = 1/59.8$

S/N = 37.4

$A_v = 0.0043$

$v_* = 270$ $\text{km s}^{-1} \quad v_* = -0.01 \text{ km s}^{-1}$
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STARLIGHT applied to an SDSS Spectra

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STARLIGHT applied to an SDSS Spectra

$\chi^2 = 0.5718$ (2282)

$\text{addev} = 1.817 \% = 1/55$

$S/N = 29$

$\Lambda_\gamma = 0.6574$

$\sigma_* = 169 \text{ } \text{ and } \nu_* = -19 \text{ km s}^{-1}$

\text{viernes 17 de enero de 14}