ABSTRACT
The survey CALIFA, Calar Alto Legacy Integral Field Area Survey, will provide the largest and most comprehensive wide-field IFU survey of galaxies carried out to date, addressing several fundamental issues in galaxy structure and evolution. We will observe a statistically well-defined sample of ~600 galaxies in the local universe using 210 observing nights (awarded with the PMAS/PPAK integral field spectro-photometer, mounted on the Calar Alto 3.5m telescope). The defining science drivers for the project are:

- Model the stellar population & constrain the star formation histories.
- Trace the distribution of ionized gas and estimate gas-phase chemical abundances.

SCIENCE DRIVERS FOR CALIFA
- GALAXY MASS DISTRIBUTION
- STELLAR POPULATIONS
- PROPERTIES OF THE IONIZED GAS
- NUCLEAR ACTIVITY IN GALAXIES (AGN)
- STELLAR AND GAS KINEMATICS

OUR INTEREST AT UCM

STELLAR POPULATIONS DISK GALAXIES
The formation and evolution of galaxy disks is a complex process as many are the mechanisms that might alter their photometric, chemical, and kinematical properties. Many important questions remain unanswered: How old are the disks seen in the spiral galaxies today? How do they chemically evolve? Are they growing inside-out, as proposed to explain the color and metallicity gradients in our Milky Way? Do they have an edge? How efficient is the stellar radial diffusion? To well understand the mechanisms governing the evolution of spiral galaxies, and to known precisely the SF and chemical history of these objects is needed. Our effort is committed to add another dimension to the study of nearby disk galaxies thanks to the use of 3D data and to take advantage of large number of spaxels provided by these CALIFA observations.

PROPERTIES OF IONIZED GAS DISK GALAXIES
The few studies on the chemical composition of HI regions (that trace the sites of massive SF) at large galactocentric distances suggest that the extended disks are relatively unevoluted systems. The study of nebular abundances is therefore crucial for understanding the chemical evolution of galaxies. Our aim is to determine metal abundances at different radii using strong-line methods in order to comprehend the chemical evolution of disks as a function of galaxy mass and environment. In those cases where the measurements would be available we will also improve the empirical calibration of the strong-line methods, again, as a function of radii, galaxy mass, and environment.

CALIFA OBSERVATIONS
The CALIFA observations will be performed using PMAS at the Calar Alto (CAHA, Spain) observatory 3.5m telescope in the PPAK mode (effective FWHM ~ 1.6ʺ when the 3 dithered pointing are combined). The spectra will be covering the range 3700−7000Å in 2 overlapping setups, the red zone 4300−7000Å and the blue one 3700−5000Å. We will use 230 to 250 spaxels across the disk of NGC3982 and a total number of ~1000 spaxels covering a diameter of 1.5 R25. The reduction was carried out up to and following the procedures described in Sánchez et al. (2006) as showed in Figure 4.

REFERENCES & INFO
- Sánchez, S. et al. 2006, AN, 327, 850
- Sánchez, S. et al. 2012, AAA, 536, A8

THE SAMPLE
The CALIFA survey is obtaining spatially resolved spectroscopic information of a diameter selected sample of ~600 galaxies in the Local Universe (0.005 < z < 0.035). CALIFA has been designed to allow the building of two-dimensional maps of the following quantities: stellar populations (ages and metallicities), ionized gas (distribution, excitation mechanism and chemical abundances) and kinematic properties. We have diameter limits of 0.1 < D25 < 8.0 which allows covering the entire galaxy in one single PPAK field. This parent sample covers a substantial fraction of the galaxy LF at this redshift.

THE CASE OF NGC3982
We have observed the nearly face-on spiral galaxy NGC3982 with the PPAK IFU of PMAS at the CAHA (CAHA, Spain) observatory 3.5m telescope. We used the PPAK mode that yields a total field-of-view (FOV) of 2464ʺ2, hexagonally packed covering a range of 3700-7133Å (R = 500). The reduction was carried out up to and following the procedures described in Sánchez et al. (2006) as showed in Figure 4.

CALIFA: A NEW ERA FOR DISKS
The formation and evolution of galaxy disks is a complex process as many are the mechanisms that might alter their photometric, chemical, and kinematical properties. The study of NGC3982 demonstrates the strength of the combination of IFU and multi-wavelength imaging data. Our effort is committed to add another dimension to the study of nearby disk galaxies thanks to the use of 3D data and to take advantage of large number of spaxels provided by these CALIFA observations.

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