### 5.10 Paris Team (PAR)

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| Team Leader | Dr. Véronique Cayatte |
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| Staff | Name | Degree | Status | % | Work Package |
|---|---|---|---|---|---|
| 1. | Véronique Cayatte | PhD | staff astronomer | 40 | 1.3, 1.5, 1.6, 2.2, 2.8, 3.11 |
| 2. | Francois Hammer | PhD | head of instrum. | 5 | 1.6 |
| 3. | Chantal Balkowski | PhD | professor | 10 | 1.5 |
| 4. | Catherine Boisson | PhD | staff astronomer | 10 | 1.4, 2.8 |
| 5. | Christian Vanderriest | PhD | staff astronomer | 15 | 1.7, 2.3 |
| 6. | Hector Flores | PhD | postdoc | 30 | 1.6, 2.3, 2.8 |
| 7. | Sébastien Baratchart | Dipl.Ing. | software engineer | 30 | 1.6, 2.2, 2.6, 2.7, 2.8 |

**Local Team description:**
The Paris team includes people who were among the first exponents of 3D techniques with fibre bundle spectrographs (C. Vanderriest built SILFID in the mid-80s) to perform 3D spectroscopy at many telescopes. Other multi-object spectrographs with fibres for 4m-class telescopes have been developed in our laboratory and we have gained experience conducting large observational programmes (e.g. the ESO Slice Project Redshift Survey). We proposed the concept of deployable multiple integral field units in a field of view of 25 arcmin for the VLT FLAMES instrument facility. The FLAMES spectrograph GIRAFFE, aimed at intermediate resolution spectroscopy on an 8m telescope, is being built in-house. The fibre bundles for the 3 observing modes of GIRAFFE (two of them for integral field spectroscopy) and the fibre link which will feed another VLT high resolution spectrograph UVES, are all being assembled in Paris. We are building a large part of GIRAFFE and participate in the definition and development of the data reduction software for GIRAFFE. In additional to this software, higher level analysis routines will be offered covering specific applications (e.g. cross correlation, spectral type assignment).

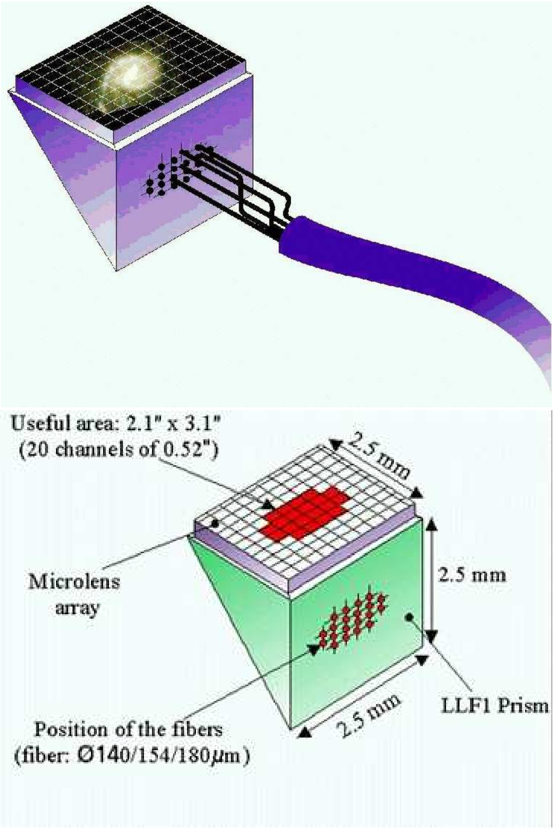
Our group, mostly composed of extragalactic scientists, is involved in the development of next generation 3D instruments for the VLT and NGST. In particular we are proposing FALCON for the VLT, a new instrument combining the concept of multiple integral field units and adaptive optics in a large field of view for 3D spectroscopy in the near-infrared.

A collaboration with scientists from Marseille Observatory has been carried out to conduct observational programmes with Fabry-Pérot interferometers for studying the dynamics of galaxies.

The team has several collaborations with the IAC and Lyon groups for studying active galaxy nuclei and gravitational lenses. Moreover the complementarity of the 3D instruments which will soon arrive at the VLT provides great opportunities in the research domains in which we are involved, principally the study of galaxies at high redshift and in clusters and groups. In this context, the Euro3D network will allow us to develop links to ESO, LYO, MAR, MIL and MPE teams for exchange of analysis software expertise and further software development. Several scientific projects will be conducted by our team in collaboration with ESO, CAM, MIL, MPE, LEI, LYO groups and will also benefit from the theoretical background of the AIP team. The formation and evolution of galaxies is one of our major research interests including the star formation history and chemical enrichment in galaxies from the early Universe to the present, disk formation history and its dynamical evolution, the rate of merging events at different epochs, the effect of intra-cluster medium on galaxies and the role of tidal interactions.

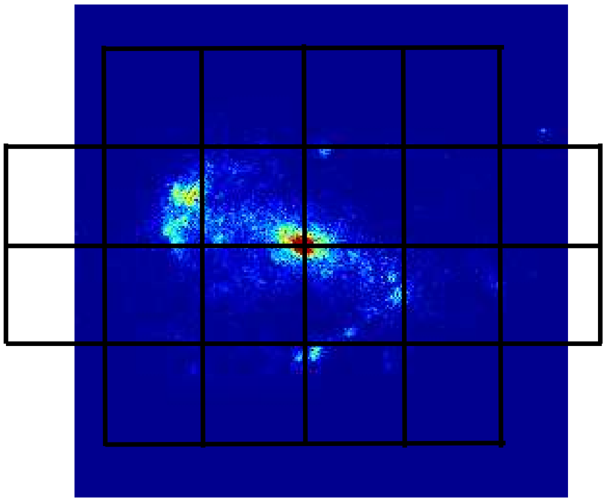
**Significant recent publications:**
Vollmer, B., Marcelin, M., Amram, P., Balkowski, C., Cayatte, V., Garrido, O. 2000, *"The consequences of ram pressure stripping on the Virgo cluster spiral galaxy NGC 4522"*, Astron.Astrophys., 364, 532

Crawford, C., Vanderriest, C., 2000, *"Optical integral field spectroscopy of the extended line emission around six radio-loud quasars"*, MNRAS, 315, 433



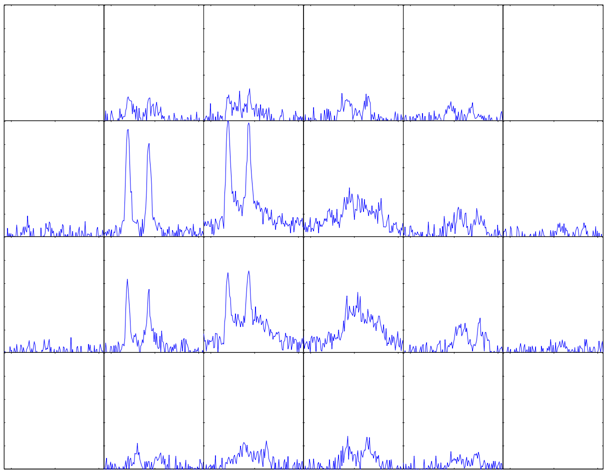

**GIRAFFE Mini IFU Concept**

The fifteen deployable mini IFUs will be positionned in the FLAMES field of 25 arcmin diameter.

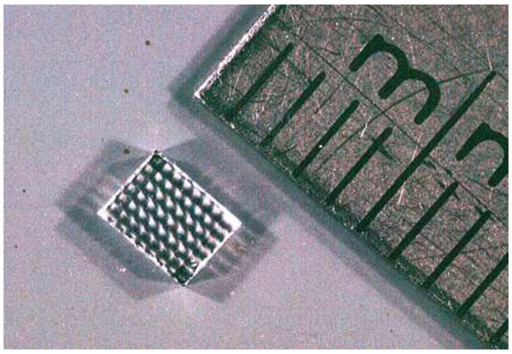


Red image of the nearby galaxy NGC 3627.

A GIRAFFE mini IFU is overlaid on the image to simulate the observation of such a spiral at z=0.74.



Simulation of the 20 spectra obtained with a GIRAFFE mini IFU located on the redshifted spiral and at a spectral resolution of 10000. Only the OII doublet redshifted at 650nm is shown here. Maximum signal to noise on the continuum is 3 and the equivalent width of the OII lines is 5 nm. Seeing is equal to 0.6arcsec.



A mini IFU microlens array for GIRAFFE