5.8 Marseille Team (MAR)

Team Leader	Dr. Vincent Le Brun
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Staff	Name	Degree	Status	%	Work Package
1.	Vincent Le Brun	PhD	associate professor	33	1.6, 2.2, 2.6, 3.11
2.	Olivier Le Fevre	PhD	senior astronomer	33	1.5, 1.6, 2.6
3.	Henry MacCracken	PhD	research fellow	50	1.6, 2.6
4.	Jean-Charles Meunier		software engineer	50	2.2, 2.6

Local team description :
The Marseille team is based at the Laboratoire d'Astrophysique de Marseille (LAM), which has decades-long expertise in instrument development, both for ground and space. The team is part of the Observational Cosmology Group which has acquired a solid international reputation in observational cosmology, including deep galaxy surveys like the Canada-France Redshift Survey or in surveys of clusters of galaxies like ENACS. The team is currently developing observational programmes to address recent major scientific issues on galaxies and structure evolution at intermediate and high redshift. These programs are based on the in-house development of Multi-Object and Integral Field Spectrographs for the ground (VIRMOS project for the VLT) or for space (NGST, SNAP).

LAM, and especially the members of the team participating in this proposal, are leading the VLT-VIRMOS project, the largest Multi Object Spectrograph to date, which will be installed on the ESO-Very Large Telescope in 2001. This instrument will be able to collect 800 galaxy spectra simultaneously. An Integral Field Unit (IFU) has been designed and built under LAM responsibility, and integrated in the instrument. With 6400 fibers over a 1 square arcminute field, this is the largest 3D spectrograph under development today. First light is expected in August-September 2001. Our team, in collaboration with 7 institutes (in France and Italy, including MIL), will be conducting the VIRMOS-VLT Deep Survey on the VLT, aiming to collect more than 150000 redshifts, as well as exploring the deep universe and the cores of distant clusters with integral field spectroscopy.

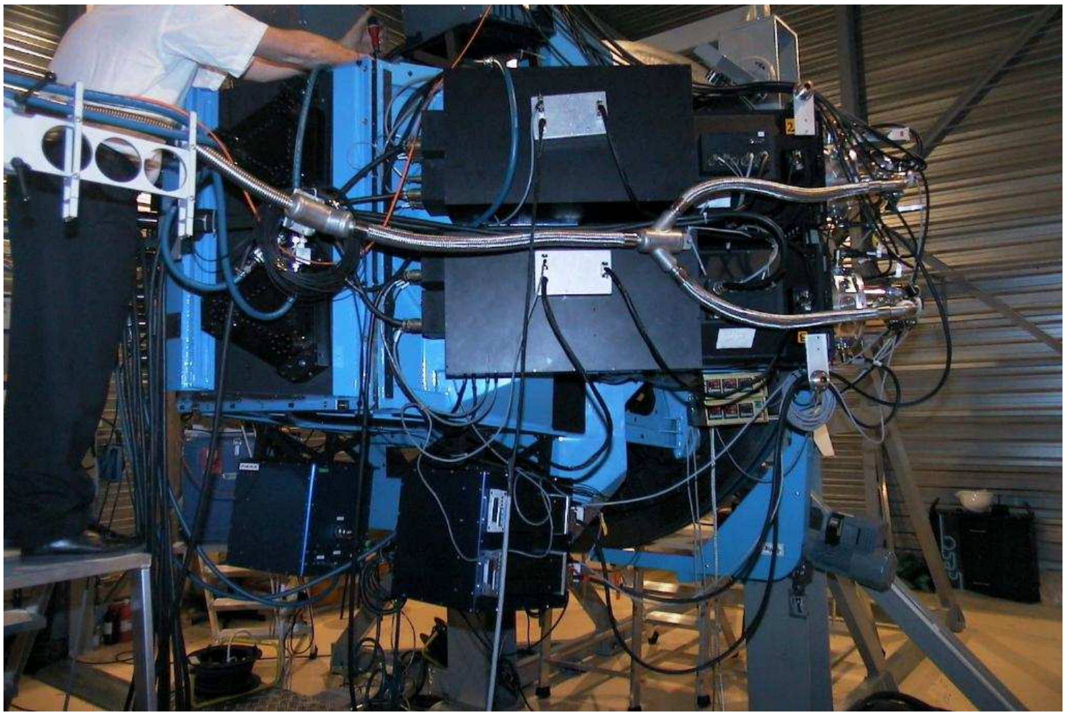
LAM is responsible for the development of the VLT-VIRMOS Deep Survey database, in collaboration with the MIL team. We are developing all the software aspects relative to data mining, extraction and visualization, both for the MOS and 3D spectroscopy data. We are also setting up a national center of expertise for VIRMOS observers, a community-oriented service for the data reduction/extraction and optimal use of MOS and IFS data. There will also be an all-public web presentation of the VLT-VIRMOS Deep Survey results.

The joint space and integral field spectroscopy expertise of our team and laboratory has led us to study IFMOS, an Integral Field Spectrograph for the Next Generation Space Telescope, under contract with ESA, as the leader of a European consortium including the DUR, ESO, LEI, LYO and MPE teams. In addition, we are under contract with ESA and Astrium to study the NGST NIR-MOS multi-object spectrograph which will also include a high spatial - high spectral resolution integral field unit.

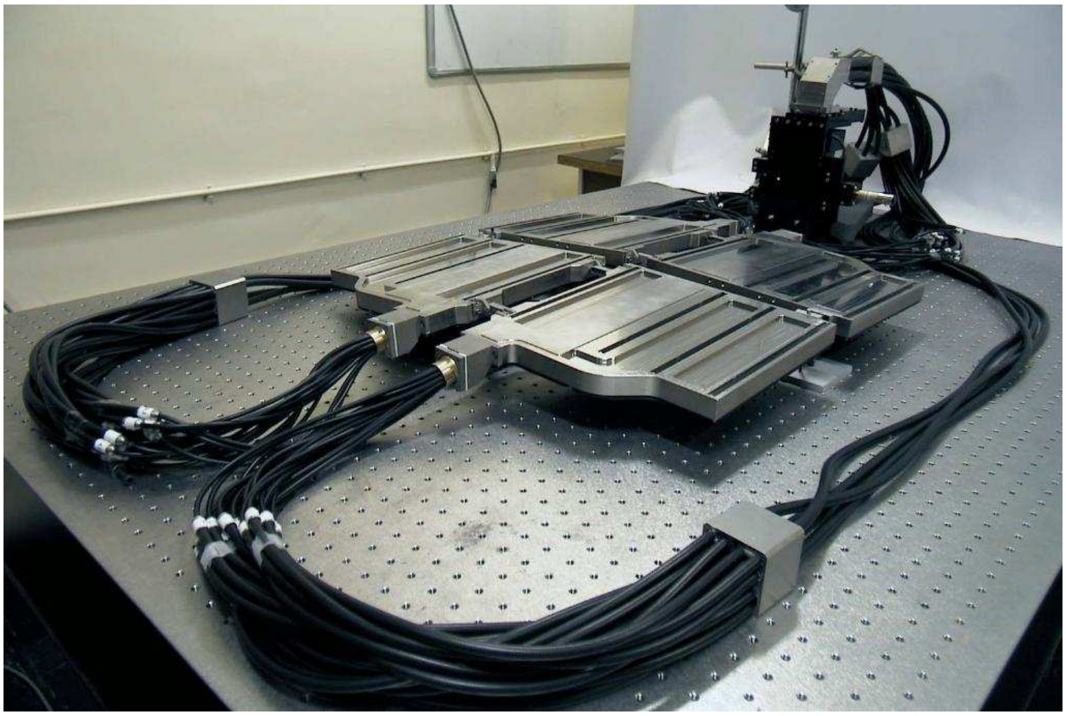
Finally, the MAR team is also participating in the SNAP experiment as a partner with the US-led team to study the integral field spectrograph for this satellite devoted to the detection and follow-up of very distant supernovae, with the goal to constrain the matter and energy content of the universe.

Significant recent publications :

Prieto E., Le Fevre O., Saise M., Voet C., Bonneville C., 2000, *"Very wide integral field unit of VIRMOS for the VLT: design and performances"*, SPIE 4008, 510
Le Fevre et al., 2000, *"Hubble Space Telescope imaging of the CFRS and LDSS redshift surveys - IV. Influence of mergers in the evolution of faint field galaxies from z 1"* MNRAS 311, 565



The VIRMOS instrument for the ESO Very Large Telescope (to be commissioned in 2001).



The VIRMOS integral field unit, producing 6400 spectra simultaneously.