MONSUL

the HEXA Imaging Fourier Transform Spectrometer for Wide Field Astrophysics

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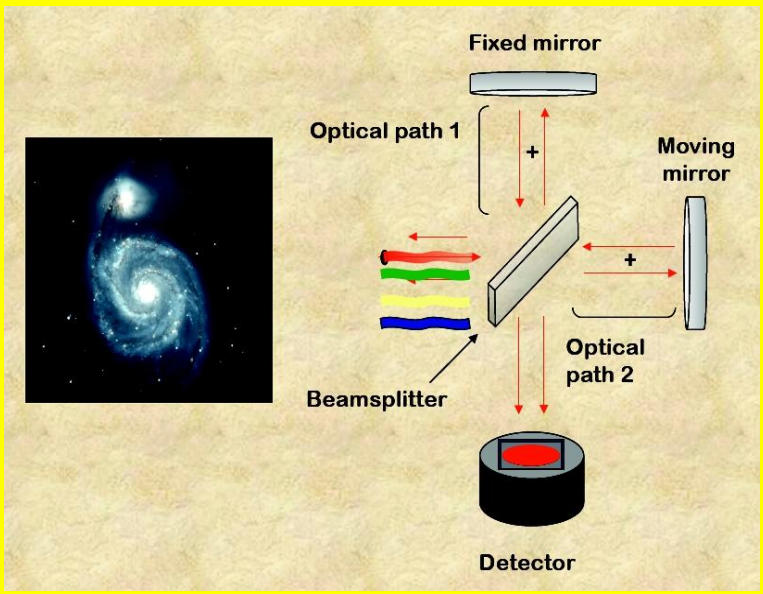
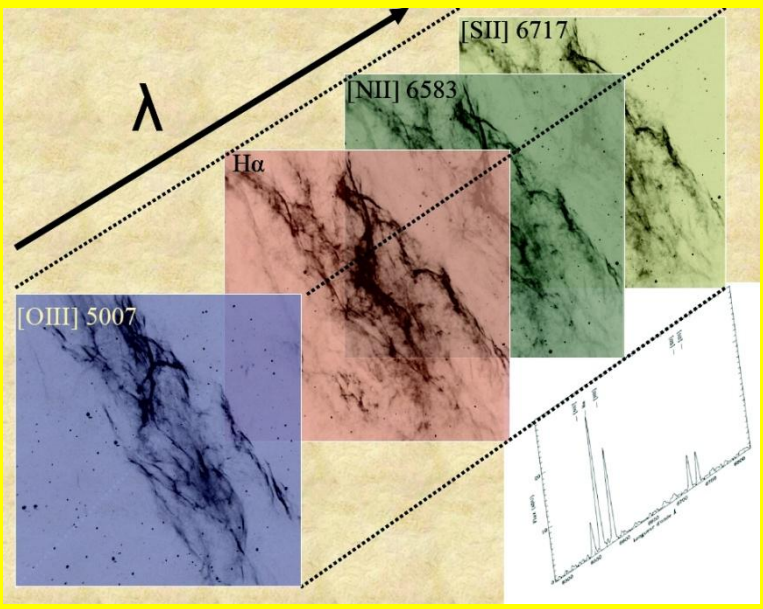
1. Basics on IFTS

IFTSs are based on the Michelson interferometry, with a fixed and a moving mirror.
The result of an exposure is a data cube in the 3-D space (R.A., Dec., Optical Path Difference).



The Inverse Fourier Transform changes the Optical Path Difference into frequency (inverse of wavelength).
The final result is a data cube in the 3-D space (R.A., Dec., wavelength) that allows the construction of bi-dimensional maps of emission/absorption features or one spectrum per pixel of the CCD.



2. Technical requirements for MONSUL

- **Field of View: 30 arcmin diameter (circular)**
- **Spectral coverage: [3700,10000]Å**
- **Resolving power: 1 < R < 20000 (flexible)**

3. Science with MONSUL

Specially designed for Wide-field Astrophysics and best-suited for crowded fields.

- **Galaxy clusters (e.g. Hercules cluster covered to more than R_{200} in ~20 pointings) and groups (e.g. Stephan's Quintet in a single pointing) in the local and intermediate redshift Universe.**
- **Nearby galaxies (e.g. M33 in 2-3 pointings, M101 in a single pointing).**
- **Stellar clusters (able to resolve the crowded central regions).**
- **High-z cosmological surveys.**

4. Main advantages of MONSUL

Wide field of view: full spatial covering of large objects or many individual objects in a single pointing.

Variable spectral resolution: from R=1 (wide-field imaging) to R=20000 (for reduced spectral ranges). Optimal between 1000 and 2000.

Angular resolution limited by seeing: best suited for crowded (stellar/galactic) fields.