



**DISCO: Dichroism, Imaging, mass Spectrometry for Chemistry and biology. From molecule to tissue**

**SOLEIL staff:**

M. Réfrégiers (Head of beamline)

A. Giuliani (INRA associated scientist)

F. Jamme (Scientist)

F. Wien (Scientist)

V. Rouam (Technical assistant)

**Areas of application, instrumentation and methodologies used**

Energy range: 1 - 20 eV = 60 - 700 nm, maintaining polarization of the light.

Three work stations are operated around a common scientific theme: biomolecular studies, with special emphasis on proteins, particularly membrane proteins:

- A circular dichroism endstation in the VUV range, down to 120 nm, which opens up new fields in the study of biological molecules, with, in particular, the possibility to follow rapid kinetics such as protein folding and unfolding in real time.
- An atmospheric pressure VUV photoionization station which may be coupled to a quadrupole mass spectrometer for atmospheric pressure studies of non-soluble molecules with new opportunities for proteomics and the photochemistry of hydrophobic molecules or to the trap of an ion trap spectrometer.
- An imaging work station for biological (living cells) and material applications with new possibilities of excitation and detection for non-probed drug in cellular pharmacokinetic studies, also allowing biomedical studies of normal and tumoral tissues. Moreover, there are new paradigms in autofluorescence diagnosis and "abandoned" molecules that fluoresce only in the UV can be used as probes.
- Other fields are also investigated: band-gap luminescence of metal oxides, ancient materials such as paintings and glues, flames, traces of life.

**Major disciplines**

Biochemistry, proteomics, cell and tissue biology, biomedicine, chemistry and photochemistry.