



GALAXIES: **G**reat be**A**m**L**ine for **A**dvanced **X**-ray **I**nelastic scattering and **E**lectron **S**pectroscopy

SOLEIL staff:

J.P. Rueff (Head of beamline)
J. Ablett (Scientist)
D. Ceolin (Scientist)
D. Prieur (Technical assistant)

Areas of application, instrumentation and methodologies used

Energy range: 2.3 – 12 keV

Beamline , optimized to work with hard x-rays, is dedicated to inelastic X-rays scattering (IXS) and hard X-ray photoemission spectroscopy (HAXPES). These spectroscopic techniques are powerful probes of the electronic properties of materials and matter.

Major disciplines

Condensed matter: Strongly correlated electron systems, superconducting materials, mixed-valence and heavy-fermion compounds, buried layers, interfaces. More generally, rare earth compounds and transition metals, such as oxides. RIXS, resonant HAXPES and Auger electron spectroscopy.

Dilute matter: sub-lifetime spectroscopy, relaxation dynamics of isolated molecules/atoms. HAXPES and RIXS

Chemistry: valence and local structure properties in metal complexes, *in-situ* chemical analysis, catalysis, electrochemistry. High resolution X-ray absorption spectroscopy, X-ray fluorescence and resonant emission.

Geophysics and biophysics: High pressure magnetism; light element K-edges in extreme conditions. Fluorescence, Raman X-ray spectroscopy.