AILES - Advanced Infrared Line Exploited for Spectroscopy

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Areas of application, instrumentation and methodologies used
Energy range: 1-400 meV, i.e., 8-3000 cm^{-1}

AILES spectroscopy workstations are devoted to rovibrational studies of molecular systems (AILES A) and optical studies of condensed matter (AILES B).
AILES A is SOLEIL's experimental workstation with the highest absolute spectral resolution: 0.1 micro eV.
AILES A: high resolution interferometer: ~ 10^{-4} meV (0.0007 cm^{-1})
AILES B: intermediate resolution interferometer: ~ 10^{-3} meV (0.007 cm^{-1})

Sampling devices: multi-pass White cell, Cooled multipass cell, multipass White Cell for electric discharge - Helium Cryostat - diamond anvil cell (20 GPa)- pressure controlled cell (10^{-7}- 1 mbar)
Main techniques: Fourier transform spectroscopy , reflectivity, attenuated total reflectance (ATR)

Major disciplines
High resolution spectroscopy for molecules of astrophysical interest , planetary atmosphere, environment.
Confinement studies (micellar, lamellar, nanopores, nanotubes): applications in pharmacology/nanotechnology/ material science.
Interface studies - optical properties: new materials applications/nanotechnology.