

SOLEIL, a third generation synchrotron radiation source of intermediate energy.

From the SOLEIL Staff

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SOLEIL is a third generation 2.75 GeV electron storage ring, which will be the core of a new synchrotron radiation facility under construction at Saint Aubin, near Paris. The laboratory will be opened to users in 2006 and should replace LURE, whose storage rings will be closed by the fall of 2003. The beamline programme encompasses a wide spectrum from far infrared (100 μ m) to hard X-rays (0.025 nm) emitted by narrow gap in-vacuum undulators and a multipole wiggler. The current budget includes construction costs for 24 beamlines (BL). 12 BL will hopefully be available in 2006 (Phase One), and the others will be opened from 2007 to 2009 (Phase Two). Phase One BL keep a fair balance between high and low energy experiments. They include macromolecular crystallography, small angle x-ray scattering, three X-ray absorption spectroscopy BL (XAS) (core XAS, microfocus XAS and imaging in the 1-7 keV range, energy_dispersive XAS), condensed matter crystallography, one BL for material studies coupling diffraction and XAS, one VUV BL for spectroscopy and photochemistry in dilute matter, two soft X-ray BL for high resolution and time resolved electron spectroscopy, and two IR BL for far IR spectroscopy and mid IR imaging/ microspectroscopy. An optical and metrology beamline for (initially) in-house applications is also under way. 11 other beamlines have already been proposed for phase II and are at various stages of approval for e.g. bio-crystallography, 3 soft X-ray beamlines for resonant scattering and X-PEEM, core excitations in dilute matter and magnetic circular and linear dichroism, high pressure, radioactive samples, solid and soft surface scattering, VUV spectroscopies in biology (including circular dichroism, mass spectrometry of hydrophobic proteins and confocal imaging by fluorescence and fluorescence lifetime).

BioXAS experiments will be performed on the core XAS line (SAMBA) and the microfocus EXAFS line (LUCIA), which are presented in other posters.