THE AILES IR AND THZ HIGH RESOLUTION SPECTROSCOPY BEAMLINE AT SOLEIL : CHARACTERISTICS AND PERFORMANCES

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A new infrared beamline (Beamline AILES) is now operating at the third generation Synchrotron Radiation source SOLEIL near Saclay, France. This beamline makes use of infrared synchrotron radiation from both edge emission and constant field emission of a bending magnet, with optics optimised for extracting a large solid angle (20×78 mrad^2) and thus for operation in the far infrared region and use of high resolution (0.001 cm^{-1}) with high flux and brilliance. The expected and measured performances in term of flux, spatial distribution of the photons, spectral range and stability are discussed. Comparison with results obtained with standard laboratory sources show a 5 to 12-fold enhancement in signal-to-noise ratio over the 50 to 500 cm^{-1} range, for high resolution measurements. The optical system, spectroscopic stations and workspace are described, as well as the beamtime application procedures.

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