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SOLEIL Experience

Monday 20 June 2011 17:00 (20 minutes)

The SOLEIL 2.75 GeV third generation synchrotron light source has been delivering photon beam to users since January 2007. The storage ring optics is based on a DBA lattice, very compact and strongly focusing to accommodate a 3.7 nm.rad horizontal emittance and a 1020 ph/s/mm2/mrad2/0.1*BW brilliance for a 354 m circumference storage ring. As of today 24 beam-lines are provided with a top-up 400 mA electron beam with an orbit stability as low as 300 nm RMS in the vertical plane in the frequency range 0-150 Hz and a beam lifetime greater than 10 h. . To achieve such performance carefully modeling and optimization of the linear and non-linear optics are required. In this talk results will be presented based on beam measurements. Examples of characterization of the non-linear dynamics perturbations driven by insertion devices (22 IDs already installed) will be shown as these latter have complex magnetic fields and may have strong impacts of the facility performance. Standard techniques and their limitations for high performance synchrotron light source will also be discussed.

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Session Classification: Experience from light sources and damping rings