Contribution ID: **100** Contribution code: **WEP52** Type: **Poster Presentation**

Optical metrology of SOLEIL II prototype long focal bendable mirror

Wednesday 17 September 2025 17:00 (1 hour)

In preparation for the SOLEIL storage ring upgrade, the SWING beamline has replaced its bendable vertically focusing optic with a state of the art mirror. Acceptance tests were conducted at SOLEIL's Optical Metrology Laboratory. Driven by two stepper motors with absolute encoders, the mirror enables precise torque control and a wide range of elliptical shapes. This presentation will cover interferometric measurements, motor motion characterization, surface quality assessments, mirror shaping strategies, and calibration for beamline integration. We will detail the use of tiling and stitching methods on a Fizeau interferometer to characterize surfaces with slope errors below 0.1 µrad, crucial for next-generation synchrotron sources. The impact of vibrations and temperature variations on measurements will be discussed, along with mitigation techniques. We will also present topography results, statistical analyses, and the installation process, concluding with initial beamline performance results.

Footnotes

Funding Agency

Author: WOZNIAK, Cyprian (Synchrotron soleil)

Co-authors: Mr VASCART, Coline (Synchrotron soleil); Dr DENNETIERE, David (Synchrotron soleil); Dr PEREZ, Javier (Synchrotron soleil); Dr MORENO, Thierry (Synchrotron soleil)

Presenter: WOZNIAK, Cyprian (Synchrotron soleil)

Session Classification: Wednesday Poster Session

Track Classification: BEAMLINES: Optics