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Optimizing SGM beamline performance: hexapod and spectroscopy enhancements

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Recent developments on the Spherical Grating Monochromator (SGM) beamline at the Canadian Light Source (CLS) have significantly enhanced its capabilities, particularly through the integration of a vacuum-compatible Physik Instrumente hexapod (H-811.I2V) and the implementation of Bluesky data acquisition software. These upgrades have facilitated the transition from traditional X-ray Absorption Spectroscopy (XAS) measurements to advanced spectromicroscopy techniques. The hexapod allows for sub-micron scale sample manipulation, enabling high-resolution imaging with a 20 mm × 15 mm field of view. Additionally, the modelling of the Kirkpatrick-Baez (KB) mirror system for adaptive focusing has further optimized the beamline's performance providing a beam spot size of less than 10 μm^2 . These developments have not only significantly improved the beamline's capabilities for environmental and catalytic material studies, but also increased the data quality for all routine spectroscopy measurements conducted on the beamline.

Footnotes

Funding Agency

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