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# Spectrum-based alignment of SIRIUS undulators

*Tuesday 3 June 2025 16:00 (2 hours)*

Undulator misalignments relative to the electron beam are known to cause photon energy shifts and significant reductions in spectral flux. This effect is particularly pronounced in in-vacuum undulators (IVUs), where the magnetic cassettes are positioned very close to each other (4.3 mm in the case of SIRIUS IVUs), making these devices more sensitive to such misalignments. This paper presents the development and application of a spectrum-based method, introduced by O. Chubar*, for diagnosing and correcting misalignments in insertion devices by evaluating their spectral response. This method has been successfully applied to some insertion devices at SIRIUS, including an adjustable phase undulator (APU22) and a recently installed in-vacuum undulator (IVU18).

## Footnotes

- Chubar, O. et al. (2018) 'Spectrum-Based Alignment of In-Vacuum Undulators in a Low-Emittance Storage Ring', Synchrotron Radiation News, 31(3), pp. 4–8. doi: 10.1080/08940886.2018.1460173.

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