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## SOLEIL II booster robustness and emittance exchange

*Thursday, 23 May 2024 16:00 (2 hours)*

For the injection into the SOLEIL II storage ring a beam with small transverse and longitudinal sizes is necessary, which requires the booster synchrotron to be upgraded. The new booster is designed as a multi-bend 16BA Higher-Order Achromat lattice with a small emittance of 5 nm-rad at 2.75 GeV. Robustness of the lattice has been studied with realistic errors in magnet alignment and calibration, but also taking into account specific errors as mismatch in the RF frequency and circumference error, as RF frequency is driven by the main storage ring. Also, power supply tracking errors have been considered and their reduction will be discussed. On top of these error studies an emittance exchange is performed to allow more flexibility in the injection parameters into the storage ring. Different methods are compared within the framework of a very realistic machine.

### Footnotes

### Funding Agency

### Paper preparation format

LaTeX

### Region represented

Europe

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