



Contribution ID: 976 Contribution code: WEPC27

Type: **Poster Presentation**

## Implementing NOECO at NSLS-II

*Wednesday, 22 May 2024 16:00 (2 hours)*

With the recently implemented lattice tool LOCOM, which combines the precision of LOCO as well as the speed of multi-frequency AC-LOCO, it takes only a few minutes for the NSLS-II lattice measurement and correction of both linear optics and coupling. Besides, LOCOM can be applied to characterize linear optics at the extremely high chromaticity condition, thus, greatly speeding up the development of a new operational mode with x/y chromaticity of +10/+10. The high chromaticity lattice could potentially enable a reliable operation of the storage ring with high single-bunch current. Moreover, to characterize the errors of chromatic sextupoles with high precision, we are in the process of implementing the NOECO based on the LOCOM method. Preliminary simulation study indicates that 1-2% precision can be achieved for the calibration of chromatic sextupole errors. If such high accuracy can be achieved, it could potentially help in resolving some long-standing challenges of NSLS-II, e.g., the discrepancy between the designed and measured tune shift with amplitude. Finally, to have an independent crosscheck, we have implemented the TBT based ICA NOECO method with a confirmed 2% accuracy.

### Footnotes

### Funding Agency

### Paper preparation format

Word

### Region represented

North America

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**Session Classification:** Wednesday Poster Session

**Track Classification:** MC2: Photon Sources and Electron Accelerators: MC2.A24 Accelerators and Storage Rings, Other