



Contribution ID: 951 Contribution code: MOPB072

Type: **Poster Presentation**

Magnet cross talk in highly-compact light-source storage ring

Monday 2 June 2025 16:00 (2 hours)

Electron storage rings based on multi-bend achromat (MBA) lattice can achieve very low natural emittances. Several fourth generation light sources have been built and operating, the natural emittances of which are a few 100 pm or even lower than 100 pm, providing high brightness photon beams to users. Since the lattice of MBA storage ring tends to be highly compact, the field of a magnet may be affected by the neighboring magnets. This effect turned out to be significant in the new Swiss Light Source storage ring with 7-BA lattice during its design study: the integral fields of magnets are altered by a few percent due to the magnet cross talk at locations, which is an order of magnitude larger than the field precision typically required. We present how we managed to reproduce the design magnetic fields and optics including the cross talk effects

Footnotes

Paper preparation format

LaTeX

Region represented

Europe

Funding Agency

Author: AIBA, Masamitsu (Paul Scherrer Institut)

Co-authors: STREUN, Andreas (Paul Scherrer Institut); RIEMANN, Bernard (Paul Scherrer Institut); CALZOLAIO, Ciro (Paul Scherrer Institut); MONTENERO, Giuseppe (European Organization for Nuclear Research); BRAUN, Hans-Heinrich (Paul Scherrer Institut); BÖGE, Michael (Paul Scherrer Institut); RICCIOLI, Rebecca (Paul Scherrer Institut); GANTER, Romain (Paul Scherrer Institut); SANFILIPPO, Stephane (Paul Scherrer Institut); VRANKOVIĆ, Vjeran (Paul Scherrer Institut)

Presenter: AIBA, Masamitsu (Paul Scherrer Institut)

Session Classification: Monday Poster Session

Track Classification: MC2: Photon Sources and Electron Accelerators: MC2.A05 Synchrotron Radiation Facilities