

Tuesday 13-02-2024

08:30-8:50

Session 1: Lattice Design

8:50-9:10

9:10-9:30

9:30-9:50

9:50-10:10

10:10-10:20

<b>Welcome and introduction, Yannis Papaphilippou (CERN)</b>
<b>chair:</b>
Lattice design for BESSY III, Paul Goslawski (HZB)
Complex Bend lattice design for NSLS-II Upgrade, Yongjun Li (BNL)
Lattice design for Korea-4GSR Light Source, Jimin Seok (PAL)
Deterministic approach to MBA lattice design, Bettina Kuske (HZB)
Discussion

10:20-10:40

Coffee break

Session 2: Optics measurements, correction and low-vertical emittance tuning

chair:

10:40-11:00

Optics corrections and beam-based alignment for low emittance rings, Xiaobiao Huang (SLAC)

11:00-11:20

Implementation of fully analytic orbit response analysis in python, Andrea Franchi (ESRF)

11:20-11:40

Online tuning and optics monitoring at ESRF, Simone Liuzzo (ESRF)

11:40-12:00

Single power supply optics correction for combined function dipoles, Zeus Marti (CELLS)

12:00-12:20

Vertical emittance control in DIAMOND-II, Ian Martin (Diamond)

12:20-12:30

Discussion

12:30-14:00

Lunch break

Session 3: Non-linear dynamics

chair:

14:00-14:20

Symplectic tracking through arbitrary magnetic fields, Ryan Lindberg (ANL)

14:20-14:40

Nonlinear dynamics optimization in ultra-low-emittance rings by minimizing the fluctuations of resonance driving terms (RDTs) along the ring, Zhenghe Bai (NSRL, Hefei)

Session 4: Magnet design

chair:

14:40-15:00

Review of the workshop on permanent magnets for low emittance rings, Emanuel Karantzoulis (ELETTRA)

15:00-15:20

HTS applications for undulators, Sebastian Richert (PSI)

15:20-15:40

Magnetic designs and tests of the complex bend at NLSL, Timur Shaftan (BNL)

15:40-16:00

Discussion

16:00-16:20

Coffee break

Session 5: Beam stability, feedback and diagnostics

chair:

16:20-16:40

Perturbation sources and improvements of Sirius Beam Stability, Fernando Henrique De Sá (LNLS)

16:40-17:00

SLS 2.0 BPM and Fast Orbit Feedback System, Boris Keil (PSI)

17:00-17:20

Two slit diagnostics beamline design for ALS-U, Changchun Sun (LBNL)

17:20-17:40

Bending Magnet Synchrotron Radiation Imaging with Large Orbital Collection Angles, Åke Andersson (MAX IV)

17:40-18:00

Discussion

19:00

Cocktail, Restaurant 1 Glassbox

**Wednesday 14-02-2024****Session 1: Design Challenges**

08:30-8:55

8:55-9:20

9:20-9:45

9:45-10:00

**Session 2a: Collective effects and mitigations**

10:00-10:20

10:20-10:40

10:40-10:50

<b>chair:</b>
Design and challenges of PETRAIV, Riccardo Bartolini (DESY)
Elettra 2.0 Lattice and technical challenges, Emanuel Karatzoulis (ELETTRA)
Challenges for the FCC ultimate storage rings, Frank Zimmermann (CERN)
Discussion
<b>chair:</b>
CSR impedance and the impact of quadrupolar wakes on beam dynamics, Ryutaro Nagaoka (SOLEIL)
Challenges of short light pulses in fourth-generation storage rings, Simone Dimitri (Elettra)
Discussion

**10:50-11:10****Coffee break****Session 2b: Collective effects and mitigations**

11:10-11:30

11:30-11:50

11:50-12:10

12:10-12:30

<b>chair:</b>
Controlling and manipulating the electron-bunch dynamics during the microbunching instability in storage rings, Clement Evain (Un. de Lille)
Low Longitudinal Emittance and Steady-State Micro-Bunching Storage Rings, Xiujie Deng (Tsinghua Un.)
Collective Effects at injection into Small Aperture Storage rings: Pros and cons of on-axis swap-out vs off-axis accumulation injection schemes, Ryan Lindberg (APS)
Discussion

**12:30-14:00****Lunch break****Session 2c: Collective effects and mitigations**

14:00-14:20

14:20-14:40

14:40-15:00

15:00-15:20

15:20-15:40

15:40-16:00

<b>chair:</b>
Mode 1 Instabilities in fourth generation Storage Rings, Francis Cullinan (MAX IV)
Theories and studies on single bunch impedance effects in storage rings of e+/e- colliders, Demin Zhou (KEK)
TMCI theory of flat chambers revisited, Thomas Günzel (CELLS)
Investigating the transverse mode-coupling instability at the MAX IV 3 GeV storage ring, Miriam Brosi (MAXIV)
Impact of beam-ion interactions in diffraction limited storage rings, Vadim Gubaidulin (SOLEIL)
Discussion

**16:00-16:30****Coffee break****Session 3: Harmonic cavity design and experiments - energy calibration**

16:20-16:50

16:50-17:10

17:10-17:30

17:30-17:50

<b>chair:</b>
Multi-frequency harmonic cavity system at MAX-IV, Åke Andersson (MAX IV)
Tests with beam at BESSY II of the ALBA 3rd Harmonic Active Cavity, Ignassi Bellafont (CELLS)
Energy calibration with resonant depolarisation & beam tests at KARA, Bastian Haerer (KIT)
Discussion

**Thursday 15-02-2024**

**Session 1: Power consumption, energy efficiency and sustainability**

08:30-8:50

8:50-9:10

9:10-9:30

9:30-9:50

9:50-10:10

10:10-10:30

10:30-10:50

<b>chair:</b>
Sustainable Concepts and Technologies at IFAST, Mike Seidel (PSI)
Sustainability, Energy efficiency and power consumption at CERN, Roberto Losito (CERN)
Approach to sustainability at DESY, Andrea Klumpp (DESY)
Sustainability and energy efficiency at ESRF, Jean Luc Revol (ESRF)
Sustainability at BESSY-III, Jens Völker (HZB)
Accelerator impact review and other sustainable accelerator activities at STFC, Katie Morrow (STFC)
Discussion

**10:50-11:10**

**Coffee break**

**Session 2: Energy efficient technologies**

11:10-11:30

11:30-11:50

11:50-12:10

12:10-12:30

<b>chair:</b>
Highly efficient RF power sources, Igor Syrachev (CERN)
Superconducting thin films for RF cavities in low emittance rings, Claire Antoine (CEA Saclay)
Energy efficiency and power consumption of ERLs, Kevin André (CERN)
Discussion

**12:30-14:00**

**Lunch break**

**Session 3a: Computing tools, machine learning and AI**

14:00-14:20

14:20-14:40

14:40-15:00

15:00-15:20

15:20-15:40

<b>chair:</b>
Xsuite - an integrated framework for beam dynamics simulations, Gianni Iadarola (CERN)
Overview of ML methods at PETRA, Ilya Agapov (DESY)
Unlocking Insights from Logbooks using AI at DESY and BESSY, Antonin Sulc (DESY)
ML approaches for the operation of the CERN accelerator complex, Verena Kain (CERN)
Discussion

**15:40-16:10**

**Coffee break**

**Session 3b: Computing tools, machine learning and AI**

16:10-16:30

16:30-16:50

16:50-17:10

17:10-17:30

17:30-17:50

<b>chair:</b>
DA studies with deep neural networks, Davide di Croce (EPFL)
Machine Learning-Based Modeling at the LHC and Muon collider studies, Elena Fol (CERN)
High-dimensional nonlinear beam dynamics tuning with Bayesian optimization, Nikita Kuklev (ANL)
Non-linear correction with ML at the LHC, Alejandro Borjesson Carazo (CERN)
Discussion

**20:00**

**Dinner, Chez Papon (Geneve)**

**Friday 16-02-2024**

**Session 1: Machine protection and collimation**

08:30-8:50	chair:
8:50-9:10	Design, commissioning and operation of the collimation for the ESRF-EBS, Reine Versteegen (ESRF)
9:10-9:30	Collimators for low-emittance whole-beam aborts, Jeffery Dooling (ANL)
9:30-9:50	Characterization of the vertical beam halo for reduced in-vacuum undulator gap, Mattia Stefanelli (ESRF)
9:50-10:10	Collimation studies for FCCee, Andrei Abramov (CERN)
10:10-10:30	Machine Interlock and Beam Abort System for SLS 2.0, Felix Armbrorst (PSI)
	Discussion

**10:30-10:50 Coffee break**

**Session 2: Injection dynamics and hardware chair:**

10:50-11:10	Injection efficiency and accumulation limit in PETRA IV, Sergey Antipov (DESY)
11:10-11:30	A Kick-and-Cancel Injection Scheme for Diamond-II, Ian Martin (DIAMOND)
11:30-11:50	Injection Hardware Challenges of Low Emittance Rings - SLS 2.0 Injection Elements, Martin Paraliiev (PSI)
11:50-12:10	Review of multipole injection kicker designs, Patrick Alexandre (SOLEIL)
12:10-12:20	Discussion
12:20-12:30	Close-out

**12:30-14:00 Lunch**

**14:00-17:00 Visits**