

# **3rd Workshop on Low Emittance Lattice Design - LEL 2022**

## **Report of Contributions**

Contribution ID: 2

Type: **not specified**

## Registration

*Monday, 27 June 2022 08:30 (15 minutes)*

Contribution ID: 3

Type: **not specified**

# Welcome

*Monday, 27 June 2022 08:45 (5 minutes)*

**Presenter:** BISCARI, Caterina

Contribution ID: 4

Type: **not specified**

## **Overview of future diffraction-limited light source storage rings: Directions to follow in view of the physical and technological challenges we have today and how they are being overcome**

*Monday, 27 June 2022 09:00 (30 minutes)*

**Presenter:** NADJI, Amor (Soleil Synchrotron)

**Session Classification:** LEL Overview

Contribution ID: 5

Type: **not specified**

## MAX IV: lessons learned

*Monday, 27 June 2022 09:30 (25 minutes)*

**Presenter:** SJÖSTRÖM, Magnus (MAX IV Laboratory)

**Session Classification:** LEL Design concept

Contribution ID: 6

Type: **not specified**

## **ESRF-EBS lessons learned**

**Presenter:** CARMIGNANI, Nicola (ESRF)

**Session Classification:** LEL Design concept

Contribution ID: 7

Type: **not specified**

## Sirius lessons learned

**Session Classification:** LEL Design concept

Contribution ID: 8

Type: **not specified**

## **PETRA IV progress**

*Monday, 27 June 2022 10:20 (25 minutes)*

**Presenter:** BARTOLINI, Riccardo (DESY)

**Session Classification:** LEL Design concept



Contribution ID: 9

Type: **not specified**

## **Latest ultra low-emittance lattice designs following the stream of the ESRF-EBS hybrid lattice, and future scope**

**Session Classification:** LEL Design concept

Contribution ID: **10**

Type: **not specified**

## **HALF progress (remote)**

*Monday, 27 June 2022 11:15 (25 minutes)*

**Presenter:** BAI, Zhenghe (NSRL, USTC)

**Session Classification:** LEL Design concept

Contribution ID: **11**

Type: **not specified**

## **Machine learning techniques for accelerators**

*Monday, 27 June 2022 14:55 (25 minutes)*

**Presenter:** FOL, Elena

**Session Classification:** LEL Tools

Contribution ID: 12

Type: **not specified**

## **Overview of computer-aided optimization of nonlinear dynamics**

**Session Classification:** LEL Tools

Contribution ID: 13

Type: **not specified**

## **Toolkit for Simulated Commissioning (SC)**

**Presenter:** HELLERT, Thorsten (DESY)

**Session Classification:** LEL Tools

Contribution ID: 14

Type: **not specified**

## UFO tracking code for GPUs

**Presenter:** CARLÀ, Michele

**Session Classification:** LEL Tools

Contribution ID: 15

Type: **not specified**

## **Elettra 2.0 progress**

*Tuesday, 28 June 2022 09:00 (25 minutes)*

**Presenter:** KARANTZOULIS, Emanuel (Elettra - Sincrotrone Trieste)

**Session Classification:** LEL Design concept

Contribution ID: 16

Type: **not specified**

## **Low emittance lattice design with variable long. field dipoles for ELETTRA upgrade**

*Tuesday, 28 June 2022 09:25 (25 minutes)*

**Presenter:** POYET, Axel (CERN)

**Session Classification:** LEL Design concept



Contribution ID: 17

Type: **not specified**

## Diamond U progress

**Presenter:** MARTIN, Ian (Diamond Light Source)

**Session Classification:** LEL Design concept

Contribution ID: **18**

Type: **not specified**

## **Deterministic design of multibend HOA lattices**

**Presenter:** KUSKE, Bettina (Helmholtz-Zentrum Berlin)

**Session Classification:** LEL Design concept

Contribution ID: **19**

Type: **not specified**

## **Deterministic design of multibend HOA lattices**

*Tuesday, 28 June 2022 11:10 (25 minutes)*

**Presenter:** KUSKE, Bettina (Helmholtz-Zentrum Berlin)

**Session Classification:** LEL Design concept

Contribution ID: **20**

Type: **not specified**

## **BESSY 3 progress**

**Presenter:** GOSLAWSKI, Paul (Helmholtz-Zentrum Berlin, BESSY II, MLS)

**Session Classification:** LEL Design concept

Contribution ID: 21

Type: **not specified**

**Overview on sensitivities of ultra low-emittance  
light source rings against errors, measures developed  
to enhance robustness and strategies of first-turn  
commissioning (remote)**

*Tuesday, 28 June 2022 12:25 (25 minutes)*

**Presenter:** SAJAEV, Vadim

**Session Classification:** Errors / Alignment / Correction

Contribution ID: 22

Type: **not specified**

## Full coupling studies at ALBA

*Tuesday, 28 June 2022 11:35 (25 minutes)*

**Presenter:** MARTÍ DÍAZ, Zeus

**Session Classification:** Errors / Alignment / Correction

Contribution ID: 23

Type: **not specified**

## **Prospects for optics measurement and correction in FCC-ee (remote)**

*Tuesday, 28 June 2022 12:00 (25 minutes)*

**Presenter:** KEINTZEL, Jacqueline (CERN)

**Session Classification:** Errors / Alignment / Correction

Contribution ID: 24

Type: **not specified**

## **Overview of collective effects and their mitigation in ultra low-emittance light source rings**

*Tuesday, 28 June 2022 14:30 (25 minutes)*

**Presenter:** CHAE, Yong (DESY)

**Session Classification:** Collective effects for LEL



Contribution ID: 25

Type: **not specified**

## **Review of bunch lengthening with harmonic cavities in ultra low-emittance light source rings, their impact on beam collective effects and future directions**

*Tuesday, 28 June 2022 14:55 (25 minutes)*

**Presenter:** CULLINAN, Francis

**Session Classification:** Collective effects for LEL

Contribution ID: 26

Type: **not specified**

## **Combined simulation of space-charge, IBS and damping/cooling for low emittance rings and beyond**

**Session Classification:** Collective effects for LEL

Contribution ID: 27

Type: **not specified**

## **Diamond-II: Impedance database, calculation of single and multi-bunch instability thresholds / rise times, ion effects and the impact of a passive super-conducting harmonic cavity**

*Tuesday, 28 June 2022 15:20 (25 minutes)*

**Presenter:** OLSSON, Teresia (Diamond Light Source)

**Session Classification:** Collective effects for LEL

Contribution ID: 28

Type: **not specified**

## **Injection into SLS-2: beam dynamics aspects and technological challenges**

*Wednesday, 29 June 2022 11:35 (25 minutes)*

**Presenter:** AIBA, Masamitsu

**Session Classification:** LEL Injection, design of injector chain, technological challenges

Contribution ID: 29

Type: **not specified**

## HALF progress

**Presenter:** BAI, Zhenghe (NSRL, USTC)

**Session Classification:** LEL Injection, design of injector chain, technological challenges

Contribution ID: 30

Type: **not specified**

## **Commissioning and characterization of the performance of the MIK (Multipole Injection Kicker) installed at SOLEIL**

*Wednesday, 29 June 2022 10:15 (25 minutes)*

**Presenter:** OLLIER, Randy (Synchrotron SOLEIL)

**Session Classification:** LEL Injection, design of injector chain, technological challenges

Contribution ID: 31

Type: **not specified**

## **The swap-out injection using the booster as an accumulator ring at the High Energy Photon Source (remote)**

*Wednesday, 29 June 2022 11:10 (25 minutes)*

**Presenter:** DUAN, Zhe (Institute of High Energy Physics, Chinese Academy of Sciences)

**Session Classification:** LEL Injection, design of injector chain, technological challenges

Contribution ID: 32

Type: **not specified**

## **Injection into Diamond-II: beam dynamics and technological challenges**

*Wednesday, 29 June 2022 12:00 (25 minutes)*

**Presenter:** KALLESTRUP, Jonas (Diamond Light Source)

**Session Classification:** LEL Injection, design of injector chain, technological challenges



Contribution ID: **33**

Type: **not specified**

**TBD**

**Session Classification:** LEL Injection, design of injector chain, technological challenges

Contribution ID: **34**

Type: **not specified**

## Introduction

*Monday, 27 June 2022 08:50 (10 minutes)*

**Presenter:** BENEDETTI, Gabriele

Contribution ID: 35

Type: **not specified**

## ESRF-EBS lessons learned

*Monday, 27 June 2022 09:55 (25 minutes)*

**Presenter:** CARMIGNANI, Nicola (ESRF)

**Session Classification:** LEL Design concept

Contribution ID: 36

Type: **not specified**

## Sirius lessons learned (remote)

*Monday, 27 June 2022 14:30 (25 minutes)*

**Presenter:** LIU, Lin (Brazilian Synchrotron Light Laboratory)

**Session Classification:** LEL Design concept

Contribution ID: 37

Type: **not specified**

## Diamond-II progress

*Monday, 27 June 2022 11:40 (25 minutes)*

**Presenter:** MARTIN, Ian (Diamond Light Source)

**Session Classification:** LEL Design concept

Contribution ID: **38**

Type: **not specified**

## **Six bend higher order achromat lattice for ALBA-II**

*Monday, 27 June 2022 12:05 (25 minutes)*

**Presenter:** BENEDETTI, Gabriele

**Session Classification:** LEL Design concept

Contribution ID: 39

Type: **not specified**

## **ALS-U: highest brightness soft x-rays in just 200 m through an ultra-dense 9BA and extensive MOGA optimization**

*Monday, 27 June 2022 12:30 (25 minutes)*

**Presenter:** SUN, Changchun (Lawrence Berkeley National Lab)

**Session Classification:** LEL Design concept

Contribution ID: 40

Type: **not specified**

## Machine Learning-Enhanced MOGA for Ultrahigh-Brightness Lattices

*Monday, 27 June 2022 15:20 (25 minutes)*

**Presenter:** LEEMANN, Simon (Lawrence Berkeley National Laboratory)

**Session Classification:** LEL Tools



Contribution ID: 41

Type: **not specified**

## Toolkit for Simulated Commissioning (SC)

*Monday, 27 June 2022 16:15 (25 minutes)*

**Presenter:** HELLERT, Thorsten (DESY)

**Session Classification:** LEL Tools

Contribution ID: 42

Type: **not specified**

## UFO tracking code for GPUs

*Monday, 27 June 2022 16:40 (25 minutes)*

**Presenter:** CARLÀ, Michele

**Session Classification:** LEL Tools

Contribution ID: 43

Type: **not specified**

## **Latest ultra low-emittance lattice designs following the stream of the ESRF-EBS hybrid lattice, and future scope (remote)**

*Monday, 27 June 2022 17:05 (25 minutes)*

**Presenter:** RAIMONDI, Pantaleo (SLAC)

**Session Classification:** LEL Design concept

Contribution ID: 44

Type: **not specified**

## **BESSY III progress**

*Tuesday, 28 June 2022 10:15 (25 minutes)*

**Presenter:** GOSLAWSKI, Paul (Helmholtz-Zentrum Berlin, BESSY II, MLS)

**Session Classification:** LEL Design concept

Contribution ID: 45

Type: **not specified**

## **Impedance and collective effects of HEPS storage ring (remote)**

*Tuesday, 28 June 2022 16:15 (25 minutes)*

**Presenter:** WANG, Na

**Session Classification:** Collective effects for LEL

Contribution ID: 46

Type: **not specified**

## **Combined simulation of space-charge, IBS and damping/cooling for low emittance rings and beyond**

*Tuesday, 28 June 2022 16:40 (25 minutes)*

**Presenter:** ZAMPETAKIS, Michail (CERN - UoC)

**Session Classification:** Collective effects for LEL

Contribution ID: 47

Type: **not specified**

## **MIK performance at the MAX IV 3 GeV ring and beam dynamics design of a MIK for the MAX IV 1.5 GeV ring**

*Wednesday, 29 June 2022 09:50 (25 minutes)*

**Presenter:** APOLLONIO, Marco (MAXIV / Lund University)

**Session Classification:** LEL Injection, design of injector chain, technological challenges

Contribution ID: 48

Type: **not specified**

## Closing remarks

*Wednesday, 29 June 2022 12:50 (10 minutes)*



Contribution ID: 49

Type: **not specified**

## **7BA-4BA HOA lattice developed for the SOLEIL upgrade**

*Tuesday, 28 June 2022 09:50 (25 minutes)*

**Presenter:** NAGAOKA, Ryutaro (Synchrotron SOLEIL)

**Session Classification:** LEL Design concept

Contribution ID: 50

Type: **not specified**

## ESRF-EBS injection status and plans

*Wednesday, 29 June 2022 09:25 (25 minutes)*

**Presenter:** WHITE, Simon (ESRF)

**Session Classification:** LEL Injection, design of injector chain, technological challenges

Contribution ID: 51

Type: **not specified**

## HALF progress

*Wednesday, 29 June 2022 09:00 (25 minutes)*

**Presenter:** BAI, Zhenghe (NSRL, USTC)

**Session Classification:** LEL Design concept