

# FCC-EIC Joint & MDI Workshop 2022



## Report of Contributions

Contribution ID: 2

Type: **not specified**

## Welcome, Introduction, Meeting Goals

*Monday 17 October 2022 14:00 (15 minutes)*

**Presenters:** SERYI, Andrei (Jefferson Lab); ABRAMOV, Andrey (CERN); ZIMMERMANN, Frank (CERN); BOSCOLO, Manuela (INFN e Laboratori Nazionali di Frascati (IT)); RAUBENHEIMER, Tor (SLAC National Accelerator Laboratory (US))

**Session Classification:** Welcome and Opening

Contribution ID: 3

Type: **not specified**

## **FCC IR Optics**

*Monday 17 October 2022 15:20 (20 minutes)*

**Presenter:** Dr OIDE, Katsunobu (High Energy Accelerator Research Organization (JP))

**Session Classification:** IR and MDI Overview

Contribution ID: 4

Type: **not specified**

## **EIC IR Optics**

*Monday 17 October 2022 16:10 (20 minutes)*

**Presenter:** BERG, J. Scott (Brookhaven National Laboratory)

**Session Classification:** IR and MDI Overview

Contribution ID: 5

Type: **not specified**

## **FCC MDI Overview**

*Monday 17 October 2022 16:30 (20 minutes)*

**Presenter:** BOSCOLO, Manuela (INFN e Laboratori Nazionali di Frascati (IT))

**Session Classification:** IR and MDI Overview

Contribution ID: 6

Type: **not specified**

## **EIC MDI Overview**

*Monday 17 October 2022 16:50 (20 minutes)*

**Presenter:** DREES, Angelika

**Session Classification:** IR and MDI Overview

Contribution ID: 7

Type: **not specified**

## **Experience in high-current rings & summary of eeFACT22**

**Session Classification:** Welcome and Opening

Contribution ID: 8

Type: **not specified**

## Summary of FCC IR Magnets Review

*Tuesday 25 October 2022 16:50 (30 minutes)*

**Presenter:** SEEMAN, John

**Session Classification:** IR Magnet Design



Contribution ID: 9

Type: **not specified**

## **Lessons Learned from the SuperKEKB IR Magnet Upgrade**

*Tuesday 18 October 2022 14:30 (30 minutes)*

**Presenter:** ARIMOTO, Yasushi (High Energy Accelerator Research Organization (KEK))

**Session Classification:** IR Magnet Design

Contribution ID: **10**

Type: **not specified**

## **Correctors and Anti-solenoids Design for FCC-ee**

*Tuesday 18 October 2022 15:00 (30 minutes)*

**Presenter:** PARKER, Brett (Brookhaven National Laboratory (US))

**Session Classification:** IR Magnet Design

Contribution ID: 11

Type: **not specified**

# FCC-ee CCT Quadrupole Design and Plans for Experimental Tests

*Tuesday 18 October 2022 14:00 (30 minutes)*

**Presenter:** KORATZINOS, m (Paul Scherrer Institute (CH))

**Session Classification:** IR Magnet Design

Contribution ID: 12

Type: **not specified**

## **EIC IR Magnet Design**

*Tuesday 18 October 2022 16:10 (20 minutes)*

**Presenter:** WITTE, Holger (Brookhaven National Laboratory)

**Session Classification:** IR Magnet Design

Contribution ID: 13

Type: **not specified**

## **EIC IR Beam Instrumentation Considerations**

*Tuesday 18 October 2022 17:00 (20 minutes)*

**Presenter:** GASSNER, David (Brookhaven National Laboratory)

**Session Classification:** Beam Instrumentation

Contribution ID: 14

Type: **not specified**

## **FCC IR Beam Instrumentation Considerations**

*Tuesday 18 October 2022 17:20 (20 minutes)*

**Presenter:** LEFEVRE, Thibaut (CERN)

**Session Classification:** Beam Instrumentation

Contribution ID: 16

Type: **not specified**

## **FCC-ee Beam Loss Tools**

*Wednesday 19 October 2022 14:00 (20 minutes)*

**Presenter:** ABRAMOV, Andrey (CERN)

**Session Classification:** Backgrounds, Global Collimation

Contribution ID: 17

Type: **not specified**

## **FCC-ee SR Backgrounds and Tools**

*Wednesday 19 October 2022 14:20 (20 minutes)*

**Presenter:** ANDRE, Kevin Daniel Joel (CERN)

**Session Classification:** Backgrounds, Global Collimation



Contribution ID: **18**

Type: **not specified**

## **FCC-ee Collimation Optics and Aperture**

*Wednesday 19 October 2022 14:40 (20 minutes)*

**Presenter:** HOFER, Michael (CERN)

**Session Classification:** Backgrounds, Global Collimation

Contribution ID: 19

Type: **not specified**

## **EIC Collimation Concept**

*Wednesday 19 October 2022 15:00 (20 minutes)*

**Presenter:** VALETTE, Matthieu (Brookhaven National Laboratory)

**Session Classification:** Backgrounds, Global Collimation

Contribution ID: 20

Type: **not specified**

## **EIC Collimator Design**

*Wednesday 19 October 2022 16:10 (20 minutes)*

**Presenter:** HETZEL, Charles (BNL)

**Session Classification:** Collimator Design

Contribution ID: 21

Type: **not specified**

## **SuperKEKB collimator design**

*Wednesday 19 October 2022 16:30 (20 minutes)*

**Presenter:** ISHIBASHI, Takuya (KEK)

**Session Classification:** Collimator Design

Contribution ID: 22

Type: **not specified**

## Tracking Studies for FCC-ee Collimator Design

*Wednesday 19 October 2022 16:50 (20 minutes)*

**Presenter:** BROGGI, Giacomo (Politecnico di Milano (IT))

**Session Classification:** Collimator Design

Contribution ID: 23

Type: **not specified**

## **Beam-beam and Lifetime Modeling at EIC**

*Thursday 20 October 2022 14:00 (20 minutes)*

**Presenter:** Dr XU, Derong (Brookhaven National Laboratory)

**Session Classification:** Beam-beam Effects Modelling, Lifetime, DA

Contribution ID: 24

Type: **not specified**

## **Beam-beam and Lifetime Modeling at FCC**

*Thursday 20 October 2022 14:20 (20 minutes)*

**Presenter:** SHATILOV, Dmitry (Budker Institute of Nuclear Physics (RU))

**Session Classification:** Beam-beam Effects Modelling, Lifetime, DA

Contribution ID: 25

Type: **not specified**

## **FCC Dynamic Aperture Optimization**

*Thursday 20 October 2022 14:40 (20 minutes)*

**Presenter:** HOFER, Michael (CERN)

**Session Classification:** Beam-beam Effects Modelling, Lifetime, DA



Contribution ID: 26

Type: **not specified**

## **EIC Dynamic Aperture Optimization**

*Thursday 20 October 2022 15:00 (20 minutes)*

**Presenter:** CAI, Yunhai

**Session Classification:** Beam-beam Effects Modelling, Lifetime, DA

Contribution ID: 27

Type: **not specified**

## **FCC-ee Impedance Model**

*Thursday 20 October 2022 16:10 (20 minutes)*

**Presenter:** CARIDEO, Emanuela (Sapienza Universita e INFN, Roma I (IT))

**Session Classification:** Impedance

Contribution ID: 28

Type: **not specified**

## **EIC Tuning, Impedance, Feedback**

*Thursday 20 October 2022 16:45 (20 minutes)*

**Presenter:** BLEDNYKH, Alexei

**Session Classification:** Impedance

Contribution ID: 29

Type: **not specified**

## **HL-LHC Crab Cavity Noise and Impedance Studies**

*Thursday 20 October 2022 17:05 (20 minutes)*

**Presenter:** CALAGA, Rama (CERN)

**Session Classification:** Impedance

Contribution ID: **30**

Type: **not specified**

## **Tuning and Alignment Overview**

*Friday 21 October 2022 14:00 (20 minutes)*

**Presenter:** TOMAS GARCIA, Rogelio (CERN)

**Session Classification:** Tuning

Contribution ID: **31**

Type: **not specified**

## **Status and Plans for EIC Optics Tuning**

*Friday 21 October 2022 14:20 (20 minutes)*

**Presenter:** Dr MARX, Daniel (Brookhaven National Laboratory)

**Session Classification:** Tuning

Contribution ID: 32

Type: **not specified**

## Status of FCC-ee Optics Tuning Simulations

*Friday 21 October 2022 14:40 (20 minutes)*

**Presenter:** CHARLES, Tessa (University of Liverpool (GB))

**Session Classification:** Tuning

Contribution ID: 33

Type: **not specified**

## Optics Measurements from Kicked Beams

*Friday 21 October 2022 16:30 (20 minutes)*

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

**Session Classification:** Tuning



Contribution ID: **34**

Type: **not specified**

## **IP Optics Corrections in FCC-ee**

*Friday 21 October 2022 15:00 (20 minutes)*

**Presenter:** VAN RIESEN-HAUPT, Leon (EPFL - Ecole Polytechnique Federale Lausanne (CH))

**Session Classification:** Tuning

Contribution ID: 35

Type: **not specified**

## Using pyAT for Commissioning Simulations

*Friday 21 October 2022 16:10 (20 minutes)*

**Presenter:** MUSA, Elaf Salah Hassan

**Session Classification:** Tuning

Contribution ID: 36

Type: **not specified**

## Discussion on Future Work topics and Workshop Close

*Friday 21 October 2022 17:10 (50 minutes)*

**Presenters:** SERI, Andrei (Jefferson Lab); ABRAMOV, Andrey (CERN); ZIMMERMANN, Frank (CERN); BOSCOLO, Manuela (INFN e Laboratori Nazionali di Frascati (IT)); CHAMIZO LLATAS, Maria (Brookhaven National Laboratory (US)); RAUBENHEIMER, Tor (SLAC National Accelerator Laboratory (US))

**Session Classification:** Discussion and Workshop Close

Contribution ID: 37

Type: **not specified**

## **Intro, Open Questions, Updates from EIC/FCC Workshop**

*Monday 24 October 2022 14:00 (20 minutes)*

**Presenter:** BOSCOLO, Manuela (INFN e Laboratori Nazionali di Frascati (IT))

**Session Classification:** Opening of the MDI Workshop

Contribution ID: **38**

Type: **not specified**

## **IR Collimation, SR Masking and Shielding**

*Monday 24 October 2022 14:30 (20 minutes)*

**Presenter:** ANDRE, Kevin Daniel Joel (CERN)

**Session Classification:** IR Collimation, Detector Backgrounds

Contribution ID: 39

Type: **not specified**

## **Beam Background Sources**

*Monday 24 October 2022 14:50 (20 minutes)*

**Presenter:** BURKHARDT, Helmut (Albert Ludwigs Universitaet Freiburg (DE))

**Session Classification:** IR Collimation, Detector Backgrounds

Contribution ID: 40

Type: **not specified**

## **Beam Loss Modelling and Collimation in the LHC**

*Monday 24 October 2022 15:10 (20 minutes)*

**Presenter:** LINDSTROM, Bjorn Hans Filip (CERN)

**Session Classification:** IR Collimation, Detector Backgrounds

Contribution ID: 41

Type: **not specified**

## Beam Halo Losses in the MDI

*Monday 24 October 2022 16:10 (20 minutes)*

**Presenter:** ABRAMOV, Andrey (CERN)

**Session Classification:** IR Collimation, Detector Backgrounds



Contribution ID: 42

Type: **not specified**

## Detector Backgrounds Impact

*Monday 24 October 2022 16:30 (20 minutes)*

**Presenter:** CIARMA, Andrea (CERN)

**Session Classification:** IR Collimation, Detector Backgrounds

Contribution ID: 43

Type: **not specified**

## **FCC-ee Collimator Impedance Model**

**Session Classification:** IR Collimation, Detector Backgrounds

Contribution ID: 44

Type: **not specified**

## **FCC-ee IR Heat Load**

*Monday 24 October 2022 16:50 (20 minutes)*

**Presenter:** Dr NOVOKHATSKI, Alexander (SLAC National Accelerator Laboratory)

**Session Classification:** IR Collimation, Detector Backgrounds

Contribution ID: 45

Type: **not specified**

## **Vibrational Orbit Effects**

*Tuesday 25 October 2022 14:00 (20 minutes)*

**Presenter:** Dr OIDE, Katsunobu (High Energy Accelerator Research Organization (JP))

**Session Classification:** IR Tolerances, Alignment, Stabilization

Contribution ID: 46

Type: **not specified**

## **IR Steering and Possible Consequences**

*Tuesday 25 October 2022 14:20 (20 minutes)*

**Presenter:** BURKHARDT, Helmut (Albert Ludwigs Universitaet Freiburg (DE))

**Session Classification:** IR Tolerances, Alignment, Stabilization

Contribution ID: 47

Type: **not specified**

## **Alignment Systems for the MDI**

*Tuesday 25 October 2022 14:40 (20 minutes)*

**Presenter:** WATRELOT, Leonard (CNAM - Conservatoire National des Arts et Métiers (FR))

**Session Classification:** IR Tolerances, Alignment, Stabilization

Contribution ID: 48

Type: **not specified**

## **FCC-ee MDI Stabilization**

*Tuesday 25 October 2022 16:10 (30 minutes)*

**Presenter:** BRUNETTI, Laurent (LAPP IN2P3 CNRS Université de Savoie)

**Session Classification:** IR Tolerances, Alignment, Stabilization

Contribution ID: 49

Type: **not specified**

## **Some IR Cryostat Design and MDI Lessons for FCC-ee**

*Tuesday 25 October 2022 17:20 (30 minutes)*

**Presenter:** PARKER, Brett (Brookhaven National Laboratory (US))

**Session Classification:** IR Magnet Design



Contribution ID: 50

Type: **not specified**

## Status of 3D CAD Model of the IR

*Wednesday 26 October 2022 14:00 (40 minutes)*

**Presenter:** LAUCIANI, Stefano (INFN e Laboratori Nazionali di Frascati (IT))

**Session Classification:** IR Mechanical Model and Mock-up

Contribution ID: 51

Type: **not specified**

## Vertex Detector Integration

*Wednesday 26 October 2022 14:40 (35 minutes)*

**Presenters:** PALLA, Fabrizio (Universita & INFN Pisa (IT)); BOSI, Filippo (Universita & INFN Pisa (IT))

**Session Classification:** IR Mechanical Model and Mock-up

Contribution ID: 52

Type: **not specified**

## **Layout Open Questions, considerations from review of Experimental Surface Sites**

*Thursday 27 October 2022 14:00 (45 minutes)*

**Presenter:** DAM, Mogens (University of Copenhagen (DK))

**Session Classification:** MDI Assembly, Detector Integration

Contribution ID: 53

Type: **not specified**

## **Detector Shielding and Accessibility**

**Session Classification:** MDI Assembly, Detector Integration

Contribution ID: 54

Type: **not specified**

## **MDI Assembly Concepts**

**Session Classification:** MDI Assembly, Detector Integration

Contribution ID: 56

Type: **not specified**

## **IR Bellow Heat Load Evaluation**

*Wednesday 26 October 2022 16:35 (20 minutes)*

**Presenter:** Dr NOVOKHATSKI, Alexander (SLAC National Accelerator Laboratory)

**Session Classification:** IR Mechanical Model and Mock-up

Contribution ID: 57

Type: **not specified**

## **Prototyping of IR Technological Details - requirements, costs and schedule**

*Wednesday 26 October 2022 17:10 (20 minutes)*

**Presenter:** PELLEGRINO, Luigi

**Session Classification:** IR Mechanical Model and Mock-up

Contribution ID: 58

Type: **not specified**

## **IR Remote Vacuum Connection**

*Wednesday 26 October 2022 17:30 (20 minutes)*

**Presenter:** PEREZ MARTINEZ, Rita (Universidad de Sevilla (ES))

**Session Classification:** IR Mechanical Model and Mock-up



Contribution ID: 59

Type: **not specified**

## Beamstrahlung Dump Considerations

*Thursday 27 October 2022 16:30 (20 minutes)*

**Presenter:** PERILLO MARCONE, Antonio (CERN)

**Session Classification:** Beamstrahlung Dump

Contribution ID: **61**

Type: **not specified**

## **Beamstrahlung Dump Radiation Studies**

*Thursday 27 October 2022 16:10 (20 minutes)*

**Presenter:** LECHNER, Anton (CERN)

**Session Classification:** Beamstrahlung Dump

Contribution ID: **62**

Type: **not specified**

## **Luminosity Monitor Requirements**

*Wednesday 26 October 2022 15:15 (25 minutes)*

**Presenter:** DAM, Mogens (University of Copenhagen (DK))

**Session Classification:** IR Mechanical Model and Mock-up

Contribution ID: 63

Type: **not specified**

## **IR Engineering: Thermal and Structural Issues**

*Wednesday 26 October 2022 16:15 (20 minutes)*

**Presenter:** FRANCESINI, Francesco

**Session Classification:** IR Mechanical Model and Mock-up

Contribution ID: 64

Type: **not specified**

## **Beam Optics Simulations of Vibrations, and Impact on Beam Emittance/Luminosity**

**Session Classification:** IR Tolerances, Alignment, Stabilization

Contribution ID: 65

Type: **not specified**

## **FCC-ee Collimator Impedance Model**

*Thursday 20 October 2022 16:30 (15 minutes)*

**Presenter:** BEHTOUEI, Mostafa

**Session Classification:** Impedance

Contribution ID: **66**

Type: **not specified**

## **Status of the FCC Feasibility Study**

*Monday 17 October 2022 14:15 (25 minutes)*

**Presenter:** BENEDIKT, Michael (CERN)

**Session Classification:** Welcome and Opening

Contribution ID: 67

Type: **not specified**

## Status and Overview of the EIC

*Monday 17 October 2022 14:40 (25 minutes)*

**Presenter:** WILLEKE, Ferdinand (Brookhaven Natl Lab)

**Session Classification:** Welcome and Opening



Contribution ID: **68**

Type: **not specified**

## **IR Mock-up Project**

*Wednesday 26 October 2022 16:55 (15 minutes)*

**Presenter:** BOSCOLO, Manuela (INFN e Laboratori Nazionali di Frascati (IT))

**Session Classification:** IR Mechanical Model and Mock-up

Contribution ID: **69**

Type: **not specified**

## **Detector Solenoid Field Map**

**Session Classification:** MDI Assembly, Detector Integration

Contribution ID: 70

Type: **not specified**

## **Considerations for Beamstrahlung Dump Integration**

*Thursday 27 October 2022 16:50 (15 minutes)*

**Presenter:** VALCHKOVA-GEORGIEVA, Fani (Bulgarian Academy of Sciences (BG))

**Session Classification:** Beamstrahlung Dump

Contribution ID: 71

Type: **not specified**

## **Lessons from low-emittance light source designs for future e+e- circular colliders**

*Friday 28 October 2022 14:00 (30 minutes)*

**Presenter:** Dr RAIMONDI, Pantaleo (SLAC National Accelerator Laboratory (US))

**Session Classification:** IR Tolerances, Alignment, Stabilization

Contribution ID: 72

Type: **not specified**

## **FCC Civil Engineering Underground Structures – Latest Developments**

*Thursday 27 October 2022 14:45 (20 minutes)*

**Presenter:** BROMLEY, Liam (CERN)

**Session Classification:** MDI Assembly, Detector Integration

Contribution ID: 73

Type: **not specified**

## **Fast luminosity monitor for FCC-ee based on the LEP experience**

*Thursday 27 October 2022 15:05 (20 minutes)*

**Presenter:** DI DOMENICO, Antonio (Sapienza Universita e INFN, Roma I (IT))

**Session Classification:** MDI Assembly, Detector Integration

Contribution ID: 74

Type: **not specified**

## **EPFL-CERN Software Collaboration**

*Wednesday 19 October 2022 17:40 (15 minutes)*

**Presenter:** VAN RIESEN-HAUPT, Leon (EPFL - Ecole Polytechnique Federale Lausanne (CH))

**Session Classification:** Software Development

Contribution ID: 75

Type: **not specified**

## **Round Table: IR Challenges for High-current Beams**

*Monday 17 October 2022 17:10 (40 minutes)*

**Session Classification:** IR and MDI Overview



Contribution ID: 76

Type: **not specified**

## Round Table Discussion

*Tuesday 18 October 2022 16:30 (30 minutes)*

**Session Classification:** IR Magnet Design

Contribution ID: 77

Type: **not specified**

## **FCC-ee MDI: Can we partially decouple the anti-solenoid and IR quadrupole designs?**

*Thursday 27 October 2022 15:25 (20 minutes)*

**Presenter:** PARKER, Brett (Brookhaven National Laboratory (US))

**Session Classification:** MDI Assembly, Detector Integration

Contribution ID: 78

Type: **not specified**

## **[Optional] FCC-ee MDI CAD Model Discussion**

*Thursday 27 October 2022 10:00 (2 hours)*

Contribution ID: 79

Type: **not specified**

## Workshop Close

*Friday 28 October 2022 15:30 (20 minutes)*

**Presenter:** ZIMMERMANN, Frank (CERN)

Contribution ID: **80**

Type: **not specified**

## Summary and Next Steps

*Friday 28 October 2022 14:30 (1 hour)*

**Presenters:** ABRAMOV, Andrey (CERN); BOSCOLO, Manuela (INFN e Laboratori Nazionali di Frascati (IT))