4th ICFA Mini-Workshop on Space Charge 2019

Report of Contributions

https://indico.cern.ch/e/828559
Welcome address

Monday, 4 November 2019 09:15 (15 minutes)

Presenter: SCHMIDT, Frank (CERN)
Workshop dinner

Tuesday, 5 November 2019 19:00 (3 hours)
Status of the LIU project

Monday, 4 November 2019 09:30 (30 minutes)

Presenter: RUMOLO, Giovanni (CERN)

Session Classification: Introduction and projects
Status of the FAIR project

Monday, 4 November 2019 10:00 (30 minutes)

Presenter: KORNILOV, Vladimir (GSI Helmholtzzentrum Darmstadt, Germany)

Session Classification: Introduction and projects
Status of PIP2 at FNAL

Monday, 4 November 2019 11:00 (30 minutes)

**Presenter:** Dr POZDEYEV, Eduard

**Session Classification:** Introduction and projects
Status of the ISIS upgrade

Monday, 4 November 2019 11:30 (30 minutes)

Presenter:  WARSOP, Chris
Session Classification:  Introduction and projects
Extraction of transfer map including self-consistent space-charge effects in a symplectic tracking code

Monday, 4 November 2019 13:30 (25 minutes)

Presenter: QIANG, Ji (Lawrence Berkeley National Laboratory)

Session Classification: Space charge modelling and simulation codes
Initial beam studies using symplectic 2D space charge with open BCs

Monday, 4 November 2019 13:55 (25 minutes)

Presenter: WEBB, Stephen (Radiasoft)

Session Classification: Space charge modelling and simulation codes
Experience with the symplectic 3D space charge kick

*Monday, 4 November 2019 14:20 (25 minutes)*

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

**Session Classification:** Space charge modelling and simulation codes
Space charge and lattice driven resonances in the CERN PS

Monday, 4 November 2019 16:05 (25 minutes)

Presenter: ASVESTA, Foteini (National Technical Univ. of Athens (GR))

Session Classification: Experimental and simulation studies
PSB simulation studies for post LS2 operation

Monday, 4 November 2019 16:30 (25 minutes)

Presenter:  RENNER, Elisabeth (Vienna University of Technology (AT))
Session Classification:  Experimental and simulation studies
Tune scan experiment at injection in the PS

Monday, 4 November 2019 16:55 (25 minutes)

Presenter: RAFIQUE, Haroon (CERN)

Session Classification: Experimental and simulation studies
On the boundary between coherent and incoherent effects

Tuesday, 5 November 2019 14:00 (25 minutes)

Presenter: FRANCHETTI, Giuliano (GSI - Helmholtzzentrum für Schwerionenforschung GmbH (DE))

Session Classification: Theory and space charge mechanisms
Characterization of resonances - coherent versus incoherent

Monday, 4 November 2019 15:10 (25 minutes)

Presenters: OEFTIGER, Adrian (GSI - Helmholtzzentrum fur Schwerionenforschung GmbH (DE)); HOFMANN, Ingo (GSI Darmstadt)

Session Classification: Theory and space charge mechanisms
Working point and space charge simulation studies for SIS100

Tuesday, 5 November 2019 11:00 (25 minutes)

Presenter: CHETVERTKOVA, Vera (GSI)

Session Classification: Experimental and simulation studies
Study of the PS integer resonance

Tuesday, 5 November 2019 11:25 (25 minutes)

Presenter: TITZE, Malte (Humboldt University of Berlin (DE))
Session Classification: Experimental and simulation studies
Studies on tune ripple

Tuesday, 5 November 2019 12:15 (25 minutes)

**Presenter:** BARTOSIK, Hannes (CERN)

**Session Classification:** Experimental and simulation studies
Modelling of the PS main magnets

Wednesday, 6 November 2019 09:45 (25 minutes)

Presenter: HUSCHAUER, Alexander (CERN)
Session Classification: Machine modelling
Non-linear model of the SPS main dipoles

Wednesday, 6 November 2019 10:10 (25 minutes)

**Presenter:** CARLA', Michele (CERN)

**Session Classification:** Machine modelling
Development of the SIS100 machine model with measured field errors

**Presenter:** KORNILOV, Vladimir (GSI Helmholtzzentrum Darmstadt, Germany)

**Session Classification:** Machine modelling
Simulations of space charge effect compensations with electron lenses in the presence of lattice imperfections

Wednesday, 6 November 2019 11:05 (25 minutes)

Presenter: Dr STERN, Eric

Session Classification: Space charge and interplay with other effects
Space charge and IBS effect in LEIR

Wednesday, 6 November 2019 11:30 (25 minutes)

Presenter: SAA HERNANDEZ, Angela (CERN)
Session Classification: Space charge and interplay with other effects
Modelling of IBS

Wednesday, 6 November 2019 11:55 (25 minutes)

Presenter: ZAMPETAKIS, Michail (University of Crete (GR))

Session Classification: Space charge and interplay with other effects
Emittance blow-up studies at the transfer from the PSB to the PS

Tuesday, 5 November 2019 11:50 (25 minutes)

Presenter: FRASER, Matthew Alexander (CERN)
Session Classification: Experimental and simulation studies
Progress toward testing non-linear integrable optics in a Paul trap

Tuesday, 5 November 2019 15:35 (25 minutes)

Presenter: MARTIN, Lucy (University of Oxford)

Session Classification: Special topics
GPU accelerated space charge simulations using SixTrackLib and PyHEADTAIL

Monday, 4 November 2019 14:45 (25 minutes)

Presenter: OEFTIGER, Adrian (GSI - Helmholtzzentrum fur Schwerionenforschung GmbH (DE))

Session Classification: Space charge modelling and simulation codes
Effects of detuning impedance, chromaticity, transverse damper, linear coupling, Landau damping and space charge on TMCI

Tuesday, 5 November 2019 16:00 (25 minutes)

Presenter: METRAL, Elias (CERN)
Session Classification: Special topics
Beam profile measurements based on pixel detectors in the PS

Tuesday, 5 November 2019 16:25 (25 minutes)

Presenter: SANDBERG, Hampus (University of Manchester (GB))
Session Classification: Special topics
Why we need the HL-LHC

Wednesday, 6 November 2019 09:00 (45 minutes)

Presenter: MANGANO, Michelangelo (CERN)
Session Classification: Special topics
Space charge effects in Linac4

Tuesday, 5 November 2019 09:30 (30 minutes)

Presenter: NOLL, Daniel (CERN)

Session Classification: Space charge effects in Linacs
Space charge issues in FFAs

Tuesday, 5 November 2019 16:50 (25 minutes)

Presenters: LAGRANGE, Jean-Baptiste (Science and Technology Facilities Council); MACHIDA, Shinji (STFC/RAL)

Session Classification: Special topics
Application of SNS beam test facility to halo formation in high-intensity linacs

Tuesday, 5 November 2019 10:00 (30 minutes)

Presenter: RUISARD, Kiersten (SNS)

Session Classification: Space charge effects in Linacs
Recent developments in PyORBIT

Presenter: TBD
Session Classification: Space charge modelling and simulation codes
Space Charge in JPARC synchrotrons

Tuesday, 5 November 2019 09:00 (30 minutes)

**Presenter:** HOTCHI, Hideaki (JPARC)

**Session Classification:** Introduction and projects
Space-charge particle resonances and mode parametric resonances

Tuesday, 5 November 2019 14:25 (25 minutes)

**Presenter:** Dr JEON, Dong-O (RAON)

**Session Classification:** Theory and space charge mechanisms
Summary of 2019 Fermilab Booster experiments

*Monday, 4 November 2019 17:20 (25 minutes)*

**Presenter:** ELDRED, Jeffrey (Fermilab)

**Session Classification:** Experimental and simulation studies
Comments on the coherent and incoherent views

Tuesday, 5 November 2019 14:50 (15 minutes)

Presenter:  MACHIDA, Shinji (STFC/RAL)
Session Classification:  Theory and space charge mechanisms