

Session Program

8-11 Apr 2025



5th ICFA Beam Dynamics Mini-Workshop on Machine Learning for Particle Accelerators

Optimisation and Control

CERN, 80/1-001 - Globe of Science and Innovation - 1st Floor
Esplanade des Particules 1, 1211 Meyrin, Switzerland

Tuesday 8 April

15:30

Optimisation and Control

Session |
Location: CERN, 80/1-001 - Globe of Science and Innovation - 1st Floor, Esplanade des Particules 1, 1211 Meyrin, Switzerland |
Convener: Michael Schenk

15:30-15:50

Serval Applications of Machine Learning at HEPS- 15'+5'

Speaker

wei bao

15:50-16:10

Photon systems automation activities at EuXFEL 15'+5'

Speaker

Sarlota Birnsteinova

16:10-16:30

ML optimization methods for APS-U commissioning- 15'+5'

Speaker

Nikita Kuklev

16:30-16:50

Data-Driven Feedback Optimization for Particle Accelerator Control- 15'+5'

Speaker

Christian Hespe

16:50-17:10

Machine Learning for Online Control of Particle Accelerators- 15'+5'

Speaker

Xiaolong Chen

17:10

Wednesday 9 April

08:30

Optimisation and Control

Session | **Location:** CERN, 503/1-001 - Council Chamber | **Convener:** Seongyeol Kim

08:30–08:50

Physics-informed Bayesian inference and optimization of the closed orbit in synchrotrons -15'+5'

Speaker

Victoria Isensee

08:50–09:10

Optimising Injection Efficiency at Diamond Light Source using Gaussian Processes with Non-Gaussian Likelihoods - 15'+5'

Speaker

Shaun Preston

09:10–09:30

Eliminating mains noise with Machine Learning- 15'+5'

Speaker

Verena Kain

09:30–09:50

Beam halo losses reduction with simulation constrained Bayesian Optimization- 15'+5'

Speaker

Andrea De Franco

09:50–10:10

Efficient Dynamic and Momentum Aperture Optimization for Lattice Design Using Multipoint Bayesian Algorithmic Execution- 15'+5'

Speakers

Daniel Ratner, Zhe Zhang

10:10–10:30

Progress on Automating Experiments at the Argonne Wakefield Accelerator Using Advanced Bayesian Optimization Algorithms - 15'+5'

Speaker

Ryan Roussel

10:30

11:00

Optimisation and Control

Session | **Location:** CERN, 503/1-001 - Council Chamber | **Convener:** Jason St John

11:00–11:20

Harnessing the Power of Gradient-Based Simulations for Multi-Objective Optimization in Particle Accelerators- 15'+5'

Speaker

Kishansingh Rajput

11:20-11:40

Virtual to Physical: Reinforcement Learning to Optimize SNS Particle Accelerator Controls- 15'+5'

Speaker

Armen Kasparian

11:40-12:00

Explainable physics-based constraints on reinforcement learning for accelerator controls- 15'+5'

Speaker

Jonathan Colen

12:00