Session Program

Dec 16 – 18, 2024

Digital Twins for Nuclear and Particle physics - NPTwins 2024

Talks

Museo Diocesano di Genova, Sala Didattica
Via Tommaso Raggio 20r, 16123 Genova, (Italy)

Mon, December 16

11:00 AM

Talks

Session | **Location:** Museo Diocesano di Genova, Sala Didattica, Via Tommaso Raggio 20r, 16123 Genova, (Italy)

11:00 – 11:15 AM **Intro**

Speakers
Marco Battaglieri, Francesco Armando Di Bello, Dr Alessandro Pilloni, Carlo Schiavi, Dr Riccardo Torre

11:15 – 11:45 AM **Hadron spectroscopy theory and AI**

Speaker
Geoffrey Fox

11:45 AM – 12:15 PM **Physics constrained GAN for amplitude extraction**

Speaker
Gloria Montana

12:15 – 12:45 PM **Point cloud-based diffusion models for the Electron-Ion Collider**

Speaker
Nobuo Sato

12:45 PM

2:30 PM

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2:30 – 2:40 PM **Greetings from the Director**

Speaker
Mauro Gino Taiuti

2:40 – 3:10 PM **Machine Learning for Hadron Spectroscopy**

Speaker
Cesar Fernandez-Ramirez

3:10 – 3:40 PM **Simulating the LHCb experiment with Machine Learning**

Speaker
Lucio Anderlini

3:40 – 4:10 PM **Training with Real Rata: Signal Extraction via Density Ratios**

Speaker
Derek Ian Glazier

4:10 PM

4:40 PM

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4:40 – 5:10 PM **Anomaly detection for BSM using AI/ML**

Speaker
Patrick Moran

5:10 – 5:40 PM **AI in ICSC/terabit**

Speaker
Lucio Anderlini

5:40 – 6:10 PM **Quantum computing applications for HEP**

Speaker
Davide Zuliani

6:10 PM

Tue, December 17

9:00 AM

Talks

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9:00 – 9:30 AM **Fast simulation with ATLAS**

Speaker
Federico Andrea Guillaume Corchia

9:30 – 10:00 AM **Global particle flow reconstruction**

Speaker
Etienne Dreyer

10:00 – 10:30 AM **Identification of HF jets/tau**

Speaker
Gabriele D'Anniballe

10:30 AM

11:00 AM

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11:00 – 11:30 AM **Charmed-hadron rec in ALICE using AI/ML**

Speaker
Maria Teresa Camerlingo

11:30 AM – 12:00 PM **Unfolding Particle Detector Effects in HEP with Generative AI**

Speaker
Yaohang Li

12:00 – 12:30 PM **Data smearing and acceptance correction using AI**

Speaker
Tommaso Vittorini

12:30 PM

2:30 PM

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2:30 – 3:00 PM **Simulation based inference at the LHC**

Speaker
Jay Sandesara

3:00 – 3:30 PM

Plug the physics into the AI: inductive bias, and the case of enforcing symmetries in neural networks

Speaker
Pietro Vischia

3:30 – 4:00 PM **AI for Experiment Optimization**

Speaker
Tommaso Dorigo

4:00 PM

4:30 PM

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4:30 – 5:00 PM **AI for real time data-reduction**

Speaker
Fabio Rossi

5:00 – 5:30 PM **AI for low-level data reconstruction**

Speakers
Raffaella De Vita, Raffaella De Vita

5:30 PM

Wed, December 18

9:00 AM

Talks

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9:00 – 9:30 AM **The Italian center for HPC (ICSC)**

Speaker
Davide Salomoni

9:30 – 10:00 AM
Determining parton distribution functions accurately and precisely with Machine Learning

Speaker
Emanuele Roberto Nocera

10:00 – 10:30 AM **Kernel Methods**

Speaker
Lorenzo Rosasco

10:30 AM

11:00 AM

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11:00 – 11:30 AM **Reinforcement learning**

Speaker
Agnese Seminara

11:30 AM – 12:00 PM **Recent developments in zero-th order optimization algorithms**

Speaker
Marco Rando

12:00 – 12:30 PM **The NPLM method: ML for signal-agnostic searches and beyond**

Speaker
Marco Letizia

12:30 PM