

Session Program

30 July 2026 to 5 August 2026

43rd International Conference on High Energy Physics

Artificial Intelligence, Machine Learning and Quantum Computing in HEP

Natal Convention Center
Via Costeira Sen. Dinarte Medeiros Mariz, 6664-6704 - Ponta Negra, Natal - RN, 59090-002

Thursday 30 July

08:30

Artificial Intelligence, Machine Learning and Quantum Computing in HEP

Session |

Location: Praiamar Natal Hotel & Convention, Room #1, R. Francisco Gurgel, 33 - Ponta Negra, Natal - RN, 59090-050 |

Convener: Vinicius Massami Mikuni

08:30-08:45

Colibri and a first Bayesian application to PDF determination

Speaker

Ms Valentina Schütze

08:45-09:00

Probabilistic modeling and Bayesian inference for collider data

Speaker

Santiago Andres Tanco

09:00-09:15

Efficient Machine Learning Inference for High-luminosity LHC Applications

Speaker

Anna Polova

09:15-09:30

Machine Can Automatically Discover Parametric Functions to Model HEP Data

Speaker

Ho-Fung Tsoi

09:30-09:45

Deep Sets and Event-Level Maximum-Likelihood Estimation for Fast Pile-Up Jet Rejection

Speaker

Mohammed Aboelela

09:45-10:00

Quantum Computing for Parton Shower and Hadronization

Speaker

Prof. Ying-Ying Li

10:15

10:45

Artificial Intelligence, Machine Learning and Quantum Computing in HEP

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10:45-11:00

The Qibo Ecosystem: Integrating Advanced QML with Real-Time Hardware Control

Speaker

Matteo Robbiati

11:00-11:15

\$S_n\$-based quantum machine learning for multi-object tracking

12:30

Speaker

Matteo Argenton

14:30

Artificial Intelligence, Machine Learning and Quantum Computing in HEP**Session** |**Location:** Praiamar Natal Hotel & Convention, Room #1, R. Francisco Gurgel, 33 - Ponta Negra, Natal - RN, 59090-050 |**Convener:** Manuel Szewc

14:30-14:45

Multi-Dimensional Integration with Quantum Adaptive Importance Sampling**Speaker**

Konstantinos Pyretzidis

14:45-15:00

Learning the latent structure of background distributions**Speaker**

Santiago Andres Tanco

15:00-15:15

EveNet: A Foundation Model for Particle Collision Data Analysis**Speaker**

Yulei Zhang

15:15-15:30

JetParticle-JEPA : An efficient Self-Supervised Representation Learning Method for Jet Tagging**Speaker**

Antonin VACHERET

15:30-15:45

PanopTag: Simultaneously Tagging All Jets in a Particle Collision Event**Speaker**

Brendon Bullard

15:45-16:00

Deep Learning Methods for Jet Tagging and Process Classification Using Image Processing**Speaker**

Jhoão Gabriel Martins Campos de Almeida Arneiro

16:00-16:15

A Hyperparameter Optimization Framework for Preparing ML Models for Real-Time Trigger Deployment**Speaker**

Anna Polova

16:15

16:45

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17:15-17:30

CAIPORA: Embedding Real-Time Intelligence into FPGAs for Instantaneous Supernova Detection

Speaker

Rodrigo Congio

17:30-17:45

Physics-Aware Compilation Digital Twin for Observable-Preserving Three-Flavor Collective Neutrino Simulation on IBM Quantum

Speaker

Dr Jianlong Lu

17:45-18:00

Dataset Annotation and Event Classification in the CONNIE Experiment

Speaker

Sara Mirthis Dantas dos Santos

18:00-18:15

Multi-task masked autoencoder pretraining for TeV neutrino event reconstruction in FASERCal

Speaker

Dr Saul Alonso Monsalve

18:15-18:30

Machine Learning for Physics Analyses and Event Reconstruction at the Pierre Auger Observatory

Speaker

Margita Kubátová

18:30

Friday 31 July

08:30

Artificial Intelligence, Machine Learning and Quantum Computing in HEP

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Convener: Prof. Ying-Ying Li

08:30–08:45

Machine-learning based low-energy triggers for water Cherenkov neutrino detectors

Speakers

Katharina Lachner, Dr Saul Alonso Monsalve

08:45–09:00

Masked Autoencoder Pre-trained Transformers for Pulse-Shape Discrimination in HPGe Detectors

Speaker

Marta Babicz

09:00–09:15

Dr.Sai: An LLM-Powered Multi-Agent System for Autonomous Physics Analysis at BESIII

Speakers

Beijiang Liu, Changzheng YUAN, Dr Ke Li, Zhengde Zhang

09:15–09:30

From bins to flows: a neural network approach to unbinned data-simulation corrections for CMS

Speaker

Davide Valsecchi

09:30–09:45

ACTS and Machine Learning for Phase-II ATLAS Muon Reconstruction

Speaker

Davide Di Croce

09:45–10:00

Machine Learning Techniques for Electron and Photon Triggering in ATLAS

Speaker

Prof. Eduardo Furtado De Simas Filho

10:15

10:45

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10:45–11:00

Recent Results from the ATLAS Anomaly Detection Trigger in Run 3

Speaker

Kaito Sugizaki

11:00-11:15

Classifying hadronic objects in ATLAS with ML/AI algorithms**Speaker**

Alex Sopio

11:15-11:30

Accelerating Graph Neural Networks on FPGAs for Real-Time Level-0 Muon Triggering**Speaker**

Giuliano Gustavino

11:30-11:45

Comparative study of machine learning algorithms for hypernuclei identification in simulated heavy-ion collisions.**Speaker**

Pedro Da Costa Huot

11:45-12:00

A Point Transformer Model for dN/dx Reconstruction in High-Granularity TPCs**Speaker**

Dr Guang Zhao

12:00-12:15

Neural network cluster finding for the ALICE TPC online processing**Speaker**

Christian Sonnabend

12:15-12:30

A Model-Independent Machine-Learning-Based Approach to CP Violation Searches in Multibody Decays**Speaker**

Felipe Luan Souza De Almeida

12:30

14:30

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14:30-14:45

Inclusive Multivariate Isolation for LHCb Run 3**Speaker**

Tommaso Fulghesu

14:45-15:00

ML-based B^0 meson flavour tagging at LHCb**Speaker**

Peilian Li

15:00-15:15

Graph Neural Network-based Energy Reconstruction for the LHCb Upgrade II Electromagnetic Calorimeter

Speaker
Wren Vetens

15:15-15:30 **Physics prospects with GNN-based Full Event Interpretation at LHCb**

Speaker
Elena Graverini

15:30-15:45
A graph-neural network for full event interpretation of heavy hadrons at FCC-ee

Speaker
Samuel Morand

15:45-16:00 **Quantum Fourier Integration of Decay Rates at NLO Accuracy**

Speaker
DAVID FRANCISCO RENTERIA ESTRADA

16:00-16:15 **Quantum-Enhanced Graph Neural Networks for Particle Tracking**

Speaker
Santosh Parajuli

16:15

Saturday 1 August

17:30

Artificial Intelligence, Machine Learning and Quantum Computing in HEP

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17:30-17:45

Machine-learning based particle-flow algorithm in CMS

Speaker

Christine Angela McLean

17:45-18:00

Machine Learning for Hadronization

Speaker

Manuel Szwec

18:00