

**ALPACA: modern algorithms
in machine learning and data
analysis: from medical
physics to research with
accelerators and in
underground laboratories**

Report of Contributions

Contribution ID: 1

Type: **not specified**

Registration

Monday, 20 November 2023 09:00 (45 minutes)

Contribution ID: 2

Type: **not specified**

Welcome Organizers

Monday, 20 November 2023 09:45 (15 minutes)

Contribution ID: 3

Type: **not specified**

Coffee Break

Monday, 20 November 2023 11:30 (30 minutes)

Contribution ID: 4

Type: **not specified**

ML applications: from Particle Physics to Medical Imaging

Thursday, 23 November 2023 11:15 (30 minutes)

Presenter: KRZEMIEN, Wojciech (National Centre for Nuclear Research)

Contribution ID: 5

Type: **not specified**

Analysis of positronium decays by the J-PET detector for the medical and fundamental physics studies

Monday, 20 November 2023 10:45 (30 minutes)

Presenter: DULSKI, Kamil (LNF)

Contribution ID: 6

Type: **not specified**

Investigation of o-Ps Decays for Improving CP Symmetry Test Precision with the J-PET Detector

Monday, 20 November 2023 11:15 (15 minutes)

Presenter: VALSAN ELIYAN, Kavya

Contribution ID: 7

Type: **not specified**

Machine learning methodologies for single-cell 'omic data

Monday, 20 November 2023 12:00 (1 hour)

Presenter: Prof. SANGUINETTI, Guido

Contribution ID: 8

Type: **not specified**

Quantum Computing for Machine Learning

Monday, 20 November 2023 14:00 (45 minutes)

Presenter: VALLECORSA, Sofia

Contribution ID: 9

Type: **not specified**

Challenges in modern preclinical and clinical imaging

Monday, 20 November 2023 10:00 (45 minutes)

Presenter: LESZCZYNSKI, Bartosz (M. Smoluchowski Institute of Physics, Jagiellonian University)

Contribution ID: **10**

Type: **not specified**

Deep Learning for Flavor Tagging at ATLAS experiment

Monday, 20 November 2023 16:00 (45 minutes)

Presenter: DI LUCA, Andrea (FBK)

Contribution ID: 11

Type: **not specified**

ML activities in the ALICE experiment

Tuesday, 21 November 2023 09:45 (45 minutes)

Presenter: CATALANO, Fabio (CERN)

Contribution ID: 12

Type: **not specified**

The SIDDHARTA-2 Experiment at DAFNE

Tuesday, 21 November 2023 10:30 (30 minutes)

Presenter: SIRGHI, Florin (INFN-LNF)

Contribution ID: 13

Type: **not specified**

ML in SIDDHARTA-2: the monitoring challenge

Tuesday, 21 November 2023 11:00 (30 minutes)

Presenter: MANTI, Simone

Contribution ID: 14

Type: **not specified**

Welcome from the ECT* Director

Contribution ID: 15

Type: **not specified**

Toward the end-to-end optimization of detectors for fundamental physics

Tuesday, 21 November 2023 12:00 (1 hour)

Presenter: DORIGO, Tommaso (INFN Sezione di Padova)

Contribution ID: 16

Type: **not specified**

HANDS-ON - Optimization of the SWGO detector: two challenges

Tuesday, 21 November 2023 14:00 (1 hour)

Contribution ID: 17

Type: **not specified**

HANDS-ON - Optimization of the SWGO detector: two challenges

Tuesday, 21 November 2023 15:30 (1 hour)

Contribution ID: 18

Type: **not specified**

AI-assisted design of experiments at the frontiers of computation: methods and new perspectives

Wednesday, 22 November 2023 09:45 (45 minutes)

Presenter: VISCHIA, Pietro (Universidad de Oviedo and Instituto de Ciencias y Tecnologías Espaciales de Asturias (ICTEA))

Contribution ID: 19

Type: **not specified**

Prominence of data preparation in geomagnetic storm prediction using deep learning

Wednesday, 22 November 2023 10:30 (45 minutes)

Presenter: CRISTOFORETTI, Marco (FBK)

Contribution ID: 20

Type: **not specified**

Generative Models for Particle Physics Data

Wednesday, 22 November 2023 11:15 (30 minutes)

Presenter: KORCARI, William (University of Hamburg)

Contribution ID: 21

Type: **not specified**

Informed Representation Learning with Deep Generative Models

Wednesday, 22 November 2023 12:15 (30 minutes)

Presenter: MANDUCHI, Laura

Contribution ID: 22

Type: **not specified**

Loss is more: exploring the network weight space to harvest information on its training dataset

Wednesday, 22 November 2023 12:45 (30 minutes)

Presenter: MELE, Margherita (University of Trento)

Contribution ID: 23

Type: **not specified**

Simplify to understand: extracting insight from high-dimensional simulation datasets of biological systems via information-theoretic approaches

Wednesday, 22 November 2023 14:15 (45 minutes)

Presenter: MENICHETTI, Roberto (Physics Department, University of Trento)

Contribution ID: 24

Type: **not specified**

Machine learning and mathematical models: the vaccines of the future

Wednesday, 22 November 2023 16:15 (45 minutes)

Presenter: PALLADINO, Andrea (GSK)

Contribution ID: 25

Type: **not specified**

The ML validation challenge

Wednesday, 22 November 2023 15:30 (45 minutes)

Presenter: Dr SPIEKER, Thomas (Robert Bosch GmbH)

Contribution ID: 26

Type: **not specified**

Generative models at the LHC

Thursday, 23 November 2023 09:45 (45 minutes)

Presenter: ANDERLINI, Lucio (INFN Firenze)

Contribution ID: 27

Type: **not specified**

Anomaly aware machine learning for dark matter direct detection at DARWIN

Thursday, 23 November 2023 10:30 (45 minutes)

Presenter: SCAFFIDI, Andre (SISSA)

Contribution ID: 28

Type: **not specified**

Neural networks techniques for parton distribution functions evaluation

Monday, 20 November 2023 14:45 (45 minutes)

Presenter: BARONTINI, Andrea (University of Milan)

Contribution ID: 29

Type: **not specified**

Computational Imaging and AI in Medicine

Thursday, 23 November 2023 12:15 (45 minutes)

Presenter: LANG, Daniel

Contribution ID: **30**

Type: **not specified**

Bayesian statistics in Julia

Thursday, 23 November 2023 14:00 (1 hour)

Presenter: SCHULZ, Oliver (MPI for Physics, Munich)

Contribution ID: **31**

Type: **not specified**

Hands-on

Thursday, 23 November 2023 15:30 (2 hours)

Presenter: SCHULZ, Oliver (MPI for Physics, Munich)

Contribution ID: 32

Type: **not specified**

Hypernuclear physics with machine learning

Friday, 24 November 2023 09:45 (45 minutes)

Presenter: SAITO, Takehiko (RIKEN and GSI)

Contribution ID: 33

Type: **not specified**

Photonic spiking neural networks using silicon microring resonators.

Friday, 24 November 2023 10:30 (45 minutes)

Presenter: LUGNAN, Alessio (University of Trento)

Contribution ID: 34

Type: **not specified**

Reservoir Computing Model For Multi-Electrode Electrophysiological Data Analysis

Friday, 24 November 2023 11:45 (45 minutes)

Presenter: AUSLENDER, Ilya (University of Trento)

Contribution ID: 35

Type: **not specified**

ML and Differentiable Programming optimisations for X-ray spectroscopy

Friday, 24 November 2023 09:15 (30 minutes)

Presenter: NAPOLITANO, Fabrizio (INFN - Laboratori Nazionali di Frascati, Italy)

Contribution ID: 36

Type: **not specified**

Neural networks for experimental nuclear astrophysics

Friday, 24 November 2023 12:30 (20 minutes)

Presenter: SKOWRONSKI, Jakub (Universita degli Studi di Padova)

Contribution ID: 37

Type: **not specified**

Wrap-up and goodbye

Friday, 24 November 2023 12:50 (5 minutes)