



# Workshop on Machine Learning for Cosmic-Ray Air Showers

## Tuesday 01 February 2022

### Tuesday (09:15-10:30)

-Conveners: Frank Schroeder

time	[id] title	presenter
09:15	[31] Deep learning in astroparticle physics	GLOMBITZA, Jonas
10:00	[26] Machine Learning for High-Energy Physics Reconstruction and Analysis	GLEYZER, Sergei

### Tuesday (11:00-12:30)

time	[id] title	presenter
11:00	[18] Exploitation of Symmetries and Domain Knowledge in Deep Learning Architectures	HUENNEFELD, Mirco
11:45	[7] Composition Analysis of cosmic-rays at IceCube Observatory, using Graph Neural Networks	KOUNDAL, Paras

### Tuesday: Tuesday (14:00-15:30)

time	[id] title	presenter
14:00	[3] Measurement of the high-energy muon multiplicity in cosmic-ray air showers with IceTop and IceCube using neural networks	VERPOEST, Stef
14:30	[12] Air shower reconstruction using a Graph Neural Network for the IceAct telescopes	PAUL, Larissa
15:00	[13] Cosmic ray mass composition study using a Random Forest applied to data from the IceAct telescopes	PAUL, Larissa
15:15	[30] Pattern Recognition for Multiple Interactions in a Neutron Monitor	MANGEARD, P.-S.

### Tuesday: Tuesday (16:00-17:30)

time	[id] title	presenter
16:00	[10] Composition of 100 TeV - 100 PeV Cosmic Rays with IceCube and IceTop using Boosted Decision Trees	SAFFER, Julian
16:30	[4] Cosmic rays primary energy estimation using Machine Learning and combined reconstruction	LEON SILVERIO, Diana
17:00	[1] Energy Reconstruction with Convolutional Neural Networks in IceTop	MCNALLY, Frank