

**Workshop: Probing the
Frontiers of Nuclear Physics
with AI at the EIC**

Report of Contributions

Contribution ID: 1

Type: **not specified**

Welcome

Presenter: DESHPANDE, Abhay (SBU)

Contribution ID: 2

Type: **not specified**

How uncertain your DIS events are? Event-level UQ with Bayesian DL

Monday, 25 September 2023 09:00 (30 minutes)

Primary author: FANELLI, Cristiano (W&M)

Presenter: FANELLI, Cristiano (W&M)

Session Classification: Morning session 1

Contribution ID: 3

Type: **not specified**

Challenges and Progress towards Applying AI/ML methods on Experimental Data

Monday, 25 September 2023 09:30 (30 minutes)

Primary author: REN, Yihui (BNL)

Presenter: REN, Yihui (BNL)

Session Classification: Morning session 1

Contribution ID: 4

Type: **not specified**

Machine Learning assisted Lepton-Jet asymmetries at H1 & AI Detector Co-Design for the EIC

Monday, 25 September 2023 10:00 (30 minutes)

Primary author: TORALES - ACOSTA, Fernando (LBNL)

Presenter: TORALES - ACOSTA, Fernando (LBNL)

Session Classification: Morning session 1

Contribution ID: 5

Type: **not specified**

Theory-driven Quantum Machine Learning for Colliders

Monday, 25 September 2023 11:00 (30 minutes)

Primary author: ARAZ, Jack (Durham)

Presenter: ARAZ, Jack (Durham)

Session Classification: Morning session 2

Contribution ID: 6

Type: **not specified**

Neural Quantum States for Neutron Stars

Monday, 25 September 2023 11:30 (30 minutes)

Primary author: FORE, Bryce (Argonne)

Presenter: FORE, Bryce (Argonne)

Session Classification: Morning session 2

Contribution ID: 7

Type: **not specified**

Applications of machine-learned flows to lattice QCD

Monday, 25 September 2023 12:00 (30 minutes)

Presenter: HACKETT, Daniel (MIT)

Session Classification: Morning session 2

Contribution ID: 8

Type: **not specified**

Developing expressive ML models for scaling lattice QCD

Monday, 25 September 2023 14:30 (30 minutes)

Presenter: BOYDA, Denis (MIT)

Session Classification: Afternoon session

Contribution ID: 9

Type: **not specified**

Scalar field theories via neural networks at initialization

Monday, 25 September 2023 15:00 (30 minutes)

Primary author: MAITI, Anindita (Perimeter)

Presenter: MAITI, Anindita (Perimeter)

Session Classification: Afternoon session

Contribution ID: 10

Type: **not specified**

Entanglement and thermalization in pair creation

Monday, 25 September 2023 16:00 (30 minutes)

Primary author: FLORIO, Adrien (BNL)

Presenter: FLORIO, Adrien (BNL)

Session Classification: Afternoon session

Contribution ID: 11

Type: **not specified**

Multi-differential Jet Substructure Measurement in electron-proton Collisions

Monday, 25 September 2023 16:30 (30 minutes)

Primary author: MIKUNI, Vinicius (LBNL)

Presenter: MIKUNI, Vinicius (LBNL)

Session Classification: Afternoon session

Contribution ID: 12

Type: **not specified**

Boostin Loop Amplitudes and Event Generation with Precision Networks

Tuesday, 26 September 2023 09:00 (30 minutes)

Primary author: BUTTER, Anja (Heidelberg)

Presenter: BUTTER, Anja (Heidelberg)

Session Classification: Morning session 2

Contribution ID: 13

Type: **not specified**

Optimal Transport: From Jet Physics to Quark-Gluon Plasma

Tuesday, 26 September 2023 09:30 (30 minutes)

Primary author: CAI, Tianji (SLAC)

Presenter: CAI, Tianji (SLAC)

Session Classification: Morning session 2

Contribution ID: 14

Type: **not specified**

Extracting physics and examining observable sensitivity via Bayesian Inference

Tuesday, 26 September 2023 10:00 (30 minutes)

Primary author: EHLERS, Raymond (Lawrence Berkeley National Laboratory/UC Berkeley)

Presenter: EHLERS, Raymond (Lawrence Berkeley National Laboratory/UC Berkeley)

Session Classification: Morning session 2

Contribution ID: 15

Type: **not specified**

Accelerated Monte Carlo methods from machine learning

Tuesday, 26 September 2023 11:00 (30 minutes)

Primary author: YAMAUCHI, Yukari (University of Washington)

Presenter: YAMAUCHI, Yukari (University of Washington)

Session Classification: Morning session 2

Contribution ID: 16

Type: **not specified**

Simulating EIC electron-proton events with diffusion models

Tuesday, 26 September 2023 11:30 (30 minutes)

Primary author: DEVLIN, Peter (JLab)

Presenter: DEVLIN, Peter (JLab)

Session Classification: Morning session 2

Contribution ID: 17

Type: **not specified**

Is IRC safe information all you need for jet classification?

Tuesday, 26 September 2023 12:00 (30 minutes)

Primary author: ATHANASAKOS, Dimitris (Stony Brook)

Presenter: ATHANASAKOS, Dimitris (Stony Brook)

Session Classification: Morning session 2

Contribution ID: 18

Type: **not specified**

Reconstructing Parton Structure from Lattice QCD

Tuesday, 26 September 2023 14:30 (30 minutes)

Primary author: KARPIE, Joe (JLab)

Presenter: KARPIE, Joe (JLab)

Session Classification: Afternoon session

Contribution ID: 19

Type: **not specified**

Covariant Extension of Generalized Parton Distributions using Artificial Neural Networks

Tuesday, 26 September 2023 15:00 (30 minutes)

Primary author: DALL'OLIO, Pietro (UNAM)

Presenter: DALL'OLIO, Pietro (UNAM)

Session Classification: Afternoon session

Contribution ID: 20

Type: **not specified**

The QuantOM Event-Level Inference Framework

Tuesday, 26 September 2023 15:30 (30 minutes)

Primary author: LERSCH, Daniel (JLab)

Presenter: LERSCH, Daniel (JLab)

Session Classification: Afternoon session

Contribution ID: 21

Type: **not specified**

Introduction

Monday, 25 September 2023 08:55 (5 minutes)

Presenter: RINGER, Felix (JLab/ODU)

Session Classification: Morning session 1