Session Program

Apr 12 – 14, 2023

10th workshop of the APS Topical Group on Hadronic Physics

Parallel Session

Minneapolis, Minnesota
Hilton Minneapolis 1001 Marquette Avenue South Minneapolis, MN 55403, US

Wed, April 12

2:00 PM

Parallel Session: Baryons, Hyperons, Cascades, Chair: Bill Briscoe

Session | **Location:** Orchestra C

2:00 – 2:20 PM

Investigation of the Σ^{0} Production Mechanism in p(3.5 GeV)+p Collisions

Speaker
Dr Waleed Esmail

2:20 – 2:40 PM

Towards the Discovery of First Strange Hexaquark with CLAS12

Speaker
Geraint Clash

2:40 – 3:00 PM

Cross Section Analysis for Ξ(1530) in the reaction γp ->K+K+Ξ(1530)

Speaker
Brandon Sumner

3:00 – 3:20 PM

Total cross section of Ξ(1820)*− in γp → K+K+Ξ*− at GlueX.

Speaker
chandra Akondi

3:20 – 3:30 PM

Role of the QCD spin-directed momentum transfer mechanism in pp and ep scattering polarized hyperon production

Speaker
simonetta liuti

3:35 PM

2:00 PM

Parallel Session: Collective Phenomena, Chair: Björn Schenke

Session | **Location:** Orchestra D

2:00 – 2:20 PM

Properties of gluon fields at early times in relativistic heavy ion collisions from a proper time expansion

Speaker
Margaret Carrington

2:20 – 2:40 PM

Effects of Conservation Laws on Particle Correlations in Relativistic Nuclear Collisions

Speaker
Harvir Dhindsa

2:40 – 3:00 PM

Studying the Properties of the Quark-Gluon Plasma With Small and Large Collision Systems in a Bayesian Analysis Framework

Speaker
Andi Mankolli

3:00 – 3:20 PM **(tbd)**

3:20 – 3:40 PM **(tbd)**

3:40 PM

2:00 PM

Parallel Session: Data Science, Chair: Ramona Vogt

Session | **Location:** Orchestra A

2:00 – 2:20 PM **Deep learning models for deeply virtual exclusive processes**

Speaker
Brandon Kriesten

2:20 – 2:40 PM

Polarized and unpolarized gluon parton distributions from lattice QCD and machine learning

Speaker
Raza Sufian

2:40 – 3:00 PM

GPU-based Online Reconstruction for J/ψ TSSA at SpinQuest experiment

Speaker
Dr Eric Fuchey

3:00 – 3:20 PM **Developing an AI Tracking for the CLAS12 ALERT Program**

Speaker
Mikhail Yurov

3:20 – 3:40 PM **(tbd)**

3:40 PM

2:00 PM

Parallel Session: Lattice Studies in QCD, Chair: Martha Constantinou

Session | **Location:** Orchestra B

2:00 – 2:20 PM

A continuum Schwinger method to study the pion's structure at future electron ion colliders

Speaker
Jorge Segovia

2:20 – 2:40 PM

Moments of nucleon generalized parton distributions from the leading-twist expansion of the quasi-GPD matrix element

Speaker
Xiang Gao

2:40 – 3:00 PM

Transverse momentum-dependent parton distributions for longitudinally polarized nucleons from Lattice QCD

Speaker
Michael Engelhardt

3:00 – 3:20 PM **Isoscalar Parton Distribution with Disconnected Diagrams**

Speaker
Christopher Chamness

3:20 – 3:40 PM **GUMP program for GPD global analysis**

Speaker
Yuxun Guo

3:40 PM

4:00 PM

Parallel Session: Collinear PDFs, Chair: Jing Wang

Session | **Location:** Orchestra B

4:00 – 4:20 PM **Gluon TMD studies with heavy quarkonium states**

Speaker
Francesco Giovanni Celiberto

4:20 – 4:40 PM
Simultaneous Global Analysis of Di-Hadron Fragmentation Functions and Transversity PDFs

Speaker
Christopher Cocuzza

4:40 – 5:00 PM **Basics of factorization in a scalar Yukawa field theory**

Speaker
Fatma Aslan

5:00 – 5:20 PM
Leading Power Accuracy in Lattice Calculations of Parton Distributions

Speaker
Rui Zhang

5:20 – 5:40 PM
Complementarity in Joint Lattice-Experiment Analysis of Parton Distributions

Speaker
Dr Joseph Karpie

5:40 PM

4:00 PM

Parallel Session: Exotics, Dynamics, Scalars, Chair: Eric Swanson

Session | **Location:** Orchestra C

4:00 – 4:20 PM **The Search for Hybrid Mesons at GlueX**

Speaker
William Imoehl

4:20 – 4:40 PM **Three-body dynamics of resonances from lattice QCD**

Speaker
Michael Doring

4:40 – 5:00 PM
Analytic continuation of the relativistic three-particle scattering amplitudes

Speaker
Sebastian Dawid

5:00 – 5:20 PM **Extracting the Sigma resonance from first-principles QCD**

Speaker
Arkaitz Rodas

5:20 – 5:40 PM
Towards accessing $\gamma^{\star} \gamma^{\star} \to \pi\pi$ from lattice QCD

Speaker
Andrew Jackura

5:40 PM

4:00 PM

Parallel Session: Nuclear phase diagram from Heavy Ions to Neutron Stars, Chair: Ramona Vogt

Session | **Location:** Orchestra D

4:00 – 4:20 PM
Baryon Stopping and Associated Production of Mesons in Au+Au Collisions at $\sqrt{s_{NN}}=3.0$ GeV at STAR

Speaker
Benjamin Kimelman

4:20 – 4:40 PM
Study the effects of pre-hydrodynamic flow in heavy-ion collisions at the RHIC Beam Energy Scan program

Speaker
Mashhood Munir

4:40 – 5:00 PM
Proton number cumulants and correlation functions at RHIC-BES from hydrodynamics

Speaker
Volodymyr Vovchenko

5:00 – 5:20 PM
Study net proton fluctuations with (3+1)D hybrid simulations and machine learning

Speaker
Brandon Boudreaux

5:20 – 5:40 PM **Nuclear phase diagram: from heavy ions to neutron stars**

Speaker
Veronica Dexheimer

5:40 PM

4:00 PM

Parallel Session: Ultra Peripheral Collisions, Chair: Vicki Greene

Session | **Location:** Orchestra A

4:00 – 4:20 PM **ALICE results and future prospects on UPCs**

Speaker
Daniel Tapia Takaki

4:20 – 4:40 PM
CGC for Ultra-Peripheral Pb+Pb Collisions at the Large Hadron Collider: a more realistic calculation

Speaker
Haowu Duan

4:40 – 5:00 PM **Tracking the baryon quantum number with heavy-ion collisions**

Speaker
Chun Yuen Tsang

5:00 – 5:20 PM **(tbd)**

5:20 – 5:40 PM **(tbd)**

5:40 PM

Thu, April 13

2:00 PM

Parallel Session: Generalized Parton Distributions, Chair: Alexei Prokudin

Session | **Location:** Orchestra B

2:00 – 2:20 PM **Proton GPDs from lattice QCD with novel methods**

Speaker
Joshua Miller

2:20 – 2:40 PM **Shedding light on shadow generalized parton distributions (GPDs)**

Speaker
Eric Moffat

2:40 – 3:00 PM
Phenomenology of proton and deuteron deeply virtual exclusive scattering

Speaker
Joshua Beethoven Bautista

3:00 – 3:20 PM **Evolution and the modelling of GPDs**

Speaker
Hervé Dutrieux

3:20 – 3:40 PM **(tbd)**

3:40 PM

2:00 PM

Parallel Session: J/Psi at Threshold, Chair: Patrizia Rossi

Session | **Location:** Orchestra C

2:00 – 2:20 PM
Near-threshold quarkonium production and gravitational form factors

Speaker
Yoshitaka Hatta

2:20 – 2:40 PM **Threshold charmonium photoproduction with GlueX**

Speaker
Lubomir Pentchev

2:40 – 3:00 PM
Recent results from near-threshold J/Ψ photoproduction measurement from Hall-C J/Ψ-007 experiment

Speaker
Shivangi Prasad

3:00 – 3:20 PM
J/ψ near threshold in holographic QCD: A and D gravitational form factors

Speaker
Kiminad Mamo

3:20 – 3:40 PM **Charmonium photo production**

Speaker
Adam Szczepaniak

3:40 PM

2:00 PM

Parallel Session: Meson Structure, Chair: Dave Gaskell

Session | **Location:** Orchestra D

2:00 – 2:20 PM

Measurements of Light Meson Structure via Tagged Deep Inelastic Scattering

Speaker
Rachel Montgomery

2:20 – 2:40 PM **Pion and kaon form factors from lattice QCD**

Speaker
Joseph Delmar

2:40 – 3:00 PM **The Non-Perturbative Structure of Pion**

Speaker
Joseph Maerovitz

3:00 – 3:20 PM **Update On Meson Structure Studies at Jefferson Lab Hall C**

Speaker
nathan heinrich

3:20 – 3:40 PM

Extracting the Pion Distribution Amplitude from Lattice QCD through Pseudo-Distributions

Speaker
Daniel Kovner

3:40 PM

2:00 PM

Parallel Session: Short Range Correlations, Chair: Axel Schmidt

Session | **Location:** Orchestra A

2:00 – 2:20 PM

New results from A(e,e’p) measurement on Short-range correlations in Neutron-rich nuclei

Speaker
Dien Nguyen

2:20 – 2:40 PM

Recent Jefferson Lab Measurement on Inclusive Scattering from Nuclei at x$>$1

Speaker
Burcu Duran

2:40 – 3:00 PM

Probing nuclear short-range correlations with real photons at Jefferson Lab

Speaker
Tim Kolar

3:00 – 3:20 PM

Nuclear short-range correlations with the generalized contact formalism

Speaker
Ronen Weiss

3:20 – 3:40 PM **QCD in Nuclei: Hidden Color Singlets and Diquark Phenomenology**

Speaker
Jennifer Rittenhouse West

3:40 PM

4:00 PM

Parallel Session: EMC Effect, Chair: Nadia Fomin

Session | **Location:** Orchestra A

4:00 – 4:20 PM
First Measurement of the Flavor Dependence of Nuclear PDF Modification Using Parity-Violating Deep Inelastic Scattering

Speaker
Rakitha Beminiwattha

4:20 – 4:40 PM
Isovector EMC Effect from JAM Global QCD Analysis with MARATHON Data

Speaker
Hanjie Liu

4:40 – 5:00 PM **Understanding the EMC effect with tagged DIS measurements**

Speaker
Florian Hauenstein

5:00 – 5:20 PM **EMC effect measurements at 11GeV**

Speaker
Abhyuday Sharda

5:20 – 5:40 PM
Medium-modified spin structure functions in the EMC and anti-shadowing regions

Speaker
Will Brooks

5:40 PM

4:00 PM

Parallel Session: J/Psi and Hadron Properties, Chair: Patrizia Rossi

Session | **Location:** Orchestra C

4:00 – 4:20 PM
Observation of new structures in the J/psiJ/psi mass spectrum in pp collisions at 13 TeV

Speaker
Kai Yi

4:20 – 4:40 PM
Polarization measurement of coherent J/psi photoproduction with the ALICE experiment

Speaker
Amrit Gautam

4:40 – 5:00 PM **Status of the MUon proton Scattering Experiment (MUSE)**

Speaker
Ievgen Lavrukhin

5:00 – 5:20 PM
Potential Model Calculations of Proton Mass Radius with Constrained Charge Radius

Speaker
Daniel Gallimore

5:20 – 5:40 PM **(tbd)**

5:40 PM

4:00 PM

Parallel Session: Probes of QGP, Chair: Raghav Kunawalkam Elayavalli

Session | **Location:** Orchestra D

4:00 – 4:20 PM
Identifying Quenching Effect in Heavy-ion Collisions with Machine Learning

Speaker
Yilun Wu

4:20 – 4:40 PM
Understanding the production of heavy flavor exotics in heavy ion collisions

Speaker
JINFENG LIAO

4:40 – 5:00 PM
Φ Meson Production at Forward Rapidity in Au + Au Collisions at √SNN = 200 GeV

Speaker
Uttam Acharya

5:00 – 5:20 PM
The evolution of jets and high-p_T probes in small collision systems using a multi-stage approach.

Speaker
ismail soudi

5:20 – 5:40 PM **The sPHENIX experiment at RHIC**

Speaker
Dr Weihu Ma

5:40 PM

4:00 PM

Parallel Session: Transverse Momentum Dependent Distributions, Chair: Alexei Prokudin

Session | **Location:** Orchestra B

4:00 – 4:20 PM
Tomography of pions and protons via transverse momentum dependent distributions

Speaker
Patrick Barry

4:20 – 4:40 PM **Rapidity-only TMD factorization at one loop**

Speaker
Ian Balitsky

4:40 – 5:00 PM **Mapping Nucleon and Meson Parton Distributions with Lattice QCD**

Speaker
Huey-Wen Lin

5:00 – 5:20 PM

Transverse-momentum-dependent factorization at next-to-leading power

Speaker
Leonard Gamberg

5:20 – 5:40 PM

Consistent large transverse momentum matching in TMDs with “Hadron Structure Oriented” approach

Speaker
Tommaso Rainaldi

5:40 PM

Fri, April 14

8:30 AM

Parallel Session: Hadron Structure in QCD, Chair: Alexei Prokudin

Session | **Location:** Orchestra B

8:30 – 8:50 AM

Numerical Study of Twist-3 Longitudinal-Transverse Double-Spin Asymmetries: a Probe of Quark-Gluon-Quark Correlations in Hadrons

Speaker
Brandon Bauer

8:50 – 9:10 AM

Light front time and rest frame densities of hadrons

Speaker
Adam Freese

9:10 – 9:30 AM

Confinement and Color Vortices in Chromostatics

Speaker
Dennis Sivers

9:30 – 9:50 AM

Tsallis-MIT bag model pressure distribution and the physical meaning of the bag pressure

Speaker
Gerardo Herrera Corral

9:50 – 10:10 AM

The correlated spatial structure of the proton from double generalized parton distributions as a framework for dynamical imaging

Speaker
simonetta liuti

10:10 AM

8:30 AM

Parallel Session: JLab 12 GeV and Future Intiatives, Chair: David Gaskell

Session | **Location:** Orchestra A

8:30 – 8:50 AM

Jefferson Lab Positron Program

Speaker
Dr Douglas Higinbotham

8:50 – 9:10 AM

Future Pion Structure Studies with JLab at 22 GeV and the EIC

Speaker
Dr Stephen Kay

9:10 – 9:30 AM

Gravitational form factors and mechanical properties of the proton

Speaker
Latifa Elouadrhiri

9:30 – 9:50 AM

Experimental Studies of Evolution Properties of Structure Functions in Polarized SIDIS

Speaker
Harut Avagyan

9:50 – 10:10 AM

Measurements of the Cosφ and Cos2φ Moments of the Unpolarized SIDIS π+ Cross-section at CLAS12

Speaker
Richard Capobianco

10:10 AM

8:30 AM

Parallel Session: Light Meson Decays, Chair: Lubomir Pentchev

Session | **Location:** Orchestra C

8:30 – 8:50 AM

Precision tests of fundamental physics with light pseudoscalar mesons

Speaker
Sergi Gonzàlez-Solís

8:50 – 9:10 AM

The physics program using the new JLab Eta(‘) Factory (JEF) in Hall D at Jefferson Lab.

Speaker
Bill Briscoe

9:10 – 9:30 AM **Linking the 3P0 decay model to Landau gauge QCD**

Speaker
Felipe J. Llanes-Estrada

9:30 – 9:50 AM

A FAIR Phase-0 experiment to determine the π^{0} electromagnetic transition form factor at MAMI

Speaker
Oliver Noll

9:50 – 10:10 AM

The REDTOP experiment: a η/η' factory to explore dark matter and physics beyond the Standard Model

Speaker
Corrado Gatto

10:10 AM

8:30 AM

Parallel Session: Neutrino Hadron Interactions, Chair: Florian Hauenstein

Session | **Location:** Orchestra D

8:30 – 8:50 AM

An Introduction to Neutrino-Nucleus Interactions: A Generator Perspective

Speaker
Dr Joshua Barrow

8:50 – 9:10 AM **Nuclear Effects in Neutrino Experiments**

Speaker
Adi Ashkenazi

9:10 – 9:30 AM
The impact of neutrino-nucleus interactions on neutrino oscillation physics

Speaker
Vishvas Pandey

9:30 – 9:50 AM
Measurement of axial vector form factor in antineutrino elastic scattering on free protons in the MINERvA experiment

Speaker
Tejin Cai

9:50 – 10:10 AM
Compatibility of Neutrino DIS Data and Its Impact on Nuclear Parton Distribution Functions

Speaker
Fred Olness

10:10 AM

10:30 AM

Parallel Session: Computational and Quantum Computing,, Chair: Jacquelyn Noronha-Hostler

Session | **Location:** Orchestra D

10:30 – 10:50 AM
Spectroscopy of Ising Mesons on a Noisy Digital Quantum Simulator

Speaker
Ananda Roy

10:50 – 11:10 AM
Quantum Computations for Field Theory Models in Hadron Physics and GPDs

Speaker
Gary Goldstein

11:10 – 11:30 AM
Validation of the fragmentation reactions in GEANT4 tool against LISE++ for rare isotopes studies

Speaker
Dr Sokhna Bineta Lo Amar

11:30 – 11:50 AM **Towards Trapped-Ion Analog Simulation of Lattice Gauge Theories**

Speaker
Guido Pagano

11:50 AM – 12:00 PM
The baryon anticorrelation problem may require modifying fragmentation in PYTHIA

Speaker
Victor Gonzalez

12:10 PM

10:30 AM

Parallel Session: Electron Ion Collider, Chair: David Gaskell

Session | **Location:** Orchestra A

10:30 – 10:50 AM

Probing twist-2 GPDs through the exclusive photoproduction of a photon-meson pair at JLab and beyond

Speaker
Saad Nabeebaccus

10:50 – 11:10 AM

Accessing structure of protons and nuclei at small x at the Electron-Ion Collider

Speaker
Wenbin Zhao

11:10 – 11:30 AM

Quark and Gluon Helicity Evolution at Small x

Speaker
Andrey Tarasov

11:30 – 11:50 AM

Test beam studies of a high-granularity *SiPM-on-Tile" calorimeter insert for the EIC

Speaker
Sean Preins

11:50 AM – 12:10 PM

ePIC Overview

Speaker
Joerg Reinhold

12:10 PM

10:30 AM

Parallel Session: Hadron Properties and Interactions, Chair: Bill Briscoe

Session | **Location:** Orchestra C

10:30 – 10:50 AM

N to Delta Transition Form Factors at low momentum transfers

Speaker
Hamza Atac

10:50 – 11:10 AM

K-matrix Analysis of Bottomonium in e+e- Annihilation

Speaker
Nils Hüsken

11:10 – 11:30 AM

The LHCb state $P^\Lambda_{\psi s} (4338)$ as a triangle singularity

Speaker
Eric Swanson

11:30 – 11:50 AM

Primakoff photoproduction of eta-mesons at GlueX (PrimEx-eta experiment)

Speaker
Viviana A Arroyave Flechas

11:50 AM – 12:10 PM

Deuteron Electro-Disintegration at Very High Missing Momenta

Speaker
Gema Villegas Minyety

12:10 PM

10:30 AM

Parallel Session: Hadronization, Heavy Flavor and Jet Production, Chair: Raghav Kunawalkam Elayavalli

Session | **Location:** Orchestra B

10:30 – 10:50 AM **Cold Nuclear Matter Effects on Heavy Flavor Production**

Speaker
Ramona Vogt

10:50 – 11:10 AM **Possible Existence of Universal Limit for Valence PDFs**

Speaker
Misak M Sargsian

11:10 – 11:30 AM **TMD Fragmentations from thrust dependent observables.**

Speaker
Andrea Simonelli

11:30 – 11:50 AM

Studying hadronization mechanisms with spectator tagging of slow protons at Fermilab, Jefferson Lab, and EIC

Speaker
Carolina Robles

11:50 AM – 12:10 PM

Femtoscopic correlations between D0 mesons and identified hadrons in Au+Au collisions at √sNN = 200 GeV at STAR

Speaker
Priyanka Roy Chowdhury

12:10 PM