

# Electroweak and BSM physics at the EIC



## Report of Contributions

Contribution ID: 1

Type: **not specified**

# Welcome

*Wednesday, 6 May 2020 08:40 (20 minutes)*

**Presenter:** DESHPANDE, Abhay (Stony Brook University)

Contribution ID: 2

Type: **not specified**

## **Broad overview of EIC**

*Wednesday, 6 May 2020 09:00 (30 minutes)*

**Presenter:** HIGINBOTHAM, Douglas (Jefferson Lab)

Contribution ID: 3

Type: **not specified**

## **EIC accelerator overview**

*Wednesday, 6 May 2020 09:30 (30 minutes)*

**Presenters:** MONTAG, Christoph (BNL); MONTAG, Christoph (BNL)

Contribution ID: 4

Type: **not specified**

## **Polarimetry Overview**

*Wednesday, 6 May 2020 10:00 (30 minutes)*

**Presenter:** GASKELL, Dave

Contribution ID: 5

Type: **not specified**

## **HERA/Collider(ep) physics for fixed target people**

*Wednesday, 6 May 2020 11:00 (30 minutes)*

**Presenter:** SCHMITT, Stefan (DESY)

Contribution ID: 6

Type: **not specified**

## **Impact of EIC on LHC**

*Wednesday, 6 May 2020 12:00 (30 minutes)*

**Presenter:** HOBBS, Timothy (Southern Methodist University and EIC Center@JLab)

Contribution ID: 7

Type: **not specified**

## **BSM from EIC in the LHCIII era**



Contribution ID: 8

Type: **not specified**

## **BSM and EW with positrons at EIC**

*Wednesday, 6 May 2020 13:30 (30 minutes)*

**Presenter:** MELNITCHOUK, Wally (Jefferson Lab)

Contribution ID: 9

Type: **not specified**

## Theory of lepton flavor violation

*Wednesday, 6 May 2020 14:00 (30 minutes)*

**Presenter:** MANTRY, Sonny (University of North Georgia)

Contribution ID: **10**

Type: **not specified**

## **Charged lepton flavor and number violation**

*Wednesday, 6 May 2020 14:30 (30 minutes)*

**Presenter:** ZHANG, Jinlong (Stony Brook University)

Contribution ID: 11

Type: **not specified**

## Precision weak mixing angle measurements

*Thursday, 7 May 2020 10:00 (30 minutes)*

**Presenter:** FREITAS, Ayres (University of Pittsburgh)

Contribution ID: 13

Type: **not specified**

# Electroweak Axial Structure Functions and CKM Unitarity

*Wednesday, 6 May 2020 16:30 (30 minutes)*

**Presenter:** SHIELLS, Kyle (University of Manitoba)

Contribution ID: 14

Type: **not specified**

## Parity violating DIS (g1,g5)

*Wednesday, 6 May 2020 16:00 (30 minutes)*

**Presenter:** ZHAO, Yuxiang (Stony Brook University)

Contribution ID: 15

Type: **not specified**

## **Charge symmetry violation implications on extractions**

*Thursday, 7 May 2020 09:00 (30 minutes)*

**Presenter:** SHANAHAN, Phiala (MIT)

Contribution ID: **16**

Type: **not specified**

## **Deuterium run impact on CSV**

*Thursday, 7 May 2020 09:30 (30 minutes)*

**Presenter:** DUTTA, Dipankar (Mississippi State University)



Contribution ID: 17

Type: **not specified**

## **Lorentz and CPT violation in partons**

*Thursday, 7 May 2020 11:00 (30 minutes)*

**Presenter:** LUNGHI, Enrico (Indiana University)

Contribution ID: **18**

Type: **not specified**

## **Charge-current jet measurements**

*Thursday, 7 May 2020 11:30 (30 minutes)*

**Presenter:** ARRATIA, Miguel (University of California, Riverside)

Contribution ID: **19**

Type: **not specified**

## **Dark photon searches at EIC**

*Thursday, 7 May 2020 12:00 (30 minutes)*

**Presenter:** CORLISS, Ross (SBU)

Contribution ID: **20**

Type: **not specified**

## **Time symmetry violation**

*Thursday, 7 May 2020 13:30 (30 minutes)*

**Presenter:** SNOW, Michael (Indiana University Bloomington)

Contribution ID: 21

Type: **not specified**

## **Leasons from neutrino physics for BSM searches**

Contribution ID: 22

Type: **not specified**

## Rare decays

Contribution ID: 23

Type: **not specified**

## Open session

*Thursday, 7 May 2020 14:30 (1h 30m)*

Contribution ID: 24

Type: **not specified**

## **Experience of EW and BSM physics at HERA and lessons for the EIC**

*Wednesday, 6 May 2020 11:30 (30 minutes)*

**Presenter:** GALLO, Elisabetta (DESY and University of Hamburg)



Contribution ID: 25

Type: **not specified**

## Removing flat directions in SMEFT fits: how polarized electron-ion collider data can complement the LHC

*Thursday, 7 May 2020 14:00 (30 minutes)*

We study the potential of future Electron-Ion Collider (EIC) data to probe four-fermion operators in the Standard Model Effective Field Theory (SMEFT). The ability to perform measurements with both polarized electron and proton beams at the EIC provides a powerful tool that can disentangle the effects from different SMEFT operators. We compare the potential constraints from an EIC with those obtained from Drell-Yan data at the Large Hadron Collider. We show that EIC data plays an important complementary role since it probes combinations of Wilson coefficients not accessible through available Drell-Yan measurements.

**Primary author:** WIEGAND, Daniel (Northwestern University/Argonne National Lab)

**Presenter:** WIEGAND, Daniel (Northwestern University/Argonne National Lab)

Contribution ID: 26

Type: **not specified**

## C1q and C2q with SoLID

*Wednesday, 6 May 2020 15:30 (30 minutes)*

The SoLID Spectrometer has been designed at JLab in order to provide a high luminosity and high-acceptance device for studies of parity-violation in deep inelastic scattering (PVDIS) as well as the QCD structure of

the proton in the valence quark region. The program is complementary to that of the EIC, which focusses more on the lower Bjorken  $x$  region. The PVDIS studies will measure the vector-electron and axial quark current, described by the coupling constants  $C_{2u}$  and  $C_{2d}$ . Since these are small in the Standard Model, a precision measurement provides a good test of BMS physics. Deep inelastic scattering is the only reaction for which the radiative corrections can be precisely determined. In addition, the method provides a unique way to measure hadron physics at large Bjorken  $x$ . Charge symmetry violation can be isolated with a deuterium target and an isovector EMC effect can be studied in a neutron-rich nucleus such as  $^{48}\text{Ca}$ . In addition, quark-quark correlations can be isolated in high-twist effects. With a proton target, the  $d/u$  PDF ratio can be measured directly without making corrections for nuclear targets.

**Primary author:** Prof. SOUDER, Paul (Syracuse University)

**Presenter:** Prof. SOUDER, Paul (Syracuse University)