Uncovering New Laws of Nature at the EIC

Report of Contributions

https://indico.bnl.gov/e/hepeic2024

Contribution ID: **1** Type: **not specified**

Welcome and logistics

Wednesday, 20 November 2024 08:50 (10 minutes)

Presenters: MA, Hong (BNL); DAVOUDIASL, Hooman (Brookhaven National Laboratory); DAWSON, Sally (BNL)

Contribution ID: **2** Type: **not specified**

EIC Theory Overview

Wednesday, 20 November 2024 09:00 (25 minutes)

Presenters: Prof. BHATTACHARYA, Shohini (University of Connecticut); BHATTACHARYA, Shohini (Temple University)

Contribution ID: **3** Type: **not specified**

Experimental Overview of ePIC for BSM

Wednesday, 20 November 2024 09:30 (25 minutes)

Presenter: NYCZ, Michael (University of Virginia)

Contribution ID: **4** Type: **not specified**

EIC Collider Performance

Wednesday, 20 November 2024 10:00 (25 minutes)

Presenters: SATOGATA, Todd (Brookhaven National Lab); SATOGATA, Todd (JLAB)

Contribution ID: **5** Type: **not specified**

An Overview of Monte Carlo Event Generators for the EIC

Wednesday, 20 November 2024 11:00 (25 minutes)

Presenter: Dr PAGE, Brian (BNL)

Contribution ID: **6** Type: **not specified**

PDF and SMEFT interplay in Global Fits

Wednesday, 20 November 2024 12:00 (25 minutes)

Presenter: HAMMOU, Elie (Cambridge)

Contribution ID: **7** Type: **not specified**

PDF determination and the EIC: Impact and Opportunities

Wednesday, 20 November 2024 11:30 (25 minutes)

Presenter: Dr CRUZ MARTINEZ, Juan (CERN)

Contribution ID: **8** Type: **not specified**

The Interplay Between the LHC and DIS Experiments in Probing SMEFT

Wednesday, 20 November 2024 14:00 (25 minutes)

Primary author: BOUGHEZAL, Radja (Argonne)

Presenter: BOUGHEZAL, Radja (Argonne)

Contribution ID: **9** Type: **not specified**

Low energy probes of physics beyond the Standard Model

Wednesday, 20 November 2024 14:30 (25 minutes)

Presenter: CIRIGLIANO, Vincenzo (University of Washington)

Contribution ID: **10** Type: **not specified**

Machine Learning for EIC

Presenter: Dr FANELLI, Cristiano (William and Mary)

Contribution ID: **11** Type: **not specified**

Uncovering New Dimensions with Transverse Momentum Physics at the EIC

Friday, 22 November 2024 09:00 (25 minutes)

Presenter: Prof. STEWART, Iain (MIT)

Contribution ID: **12** Type: **not specified**

BSM at the Astrophysical Intensity Frontier

Friday, 22 November 2024 09:30 (25 minutes)

Presenter: Prof. SCHUTZ, Katelin (McGill)

Contribution ID: **13** Type: **not specified**

Heavy Neutral Leptons at EIC

Friday, 22 November 2024 10:55 (25 minutes)

Presenter: HAN, Tao (UPittsburgh)

Contribution ID: **14** Type: **not specified**

Thanks and Closing

Friday, 22 November 2024 11:25 (15 minutes)

Contribution ID: **15** Type: **not specified**

Coffee

Contribution ID: **16** Type: **not specified**

BSA Distinguished Lecture: The Mystery of Dark Matter in the Universe

Wednesday, 20 November 2024 16:00 (1 hour)

The ordinary atoms that make up the known universe, from our bodies and the air we breathe to the planets and stars, constitute only 5% of all matter and energy in the cosmos. The remaining 95% is made up of a recipe of 25% dark matter and 70% dark energy, both nonluminous components whose nature remains a mystery. Freese will recount the stories of the dark matter puzzle, starting with the discoveries of visionary scientists from the 1930s who first proposed its existence, to Vera Rubin in the 1970s whose observations conclusively showed its dominance in galaxies, to the deluge of data today from underground laboratories, satellites in space, and the Large Hadron Collider. Theorists contend that dark matter most likely consists of new fundamental particles; the best candidates include WIMPs (weakly interacting massive particles), axions, light or fuzzy dark matter, or even primordial black holes. Billions of the particles would pass through our bodies every second without us even realizing it, yet their gravitational pull is capable of whirling stars and gas at breakneck speeds around the centers of galaxies, and bending light from distant bright objects. In this talk Freese will provide an overview of this cosmic cocktail, including the evidence for the existence of dark matter in galaxies. She will also talk about Dark Stars, early stars powered by dark matter, that may have already been discovered by the James Webb Space Telescope. Solving the dark matter mystery will be an epochal moment in humankind's quest to understand the universe.

Presenter: Prof. FREESE, Katherine (University of Texas)

Contribution ID: **17** Type: **not specified**

50/60 Celebration of discovery of J/Psi and CP Violation

Friday, 22 November 2024 13:30 (5h 30m)

Contribution ID: **18** Type: **not specified**

Searching for Lepton Flavor Violation at the EIC

Thursday, 21 November 2024 09:00 (25 minutes)

Presenter: Dr FUYUTO, Kaori (Los Alamos)

Contribution ID: **19** Type: **not specified**

Axion-like Particles and Lepton Flavor Violation at the EIC

Thursday, 21 November 2024 09:30 (25 minutes)

Presenter: NEIL, Ethan (University of Colorado, Boulder)

Contribution ID: **20** Type: **not specified**

Probing axion-like particles at the Electron-Ion Collider

Thursday, 21 November 2024 10:00 (25 minutes)

Presenter: LIU, Hongkai

Contribution ID: **21** Type: **not specified**

Quantum Entanglement as a Probe of Strong Interactions at the EIC

Thursday, 21 November 2024 11:00 (25 minutes)

Presenter: KHARZEEV, Dmitri (Stony Brook University and BNL)

Contribution ID: **22** Type: **not specified**

Precision in polarized pdfs

Thursday, 21 November 2024 11:30 (25 minutes)

Presenters: DE FLORIAN, Daniel (deflo@unsam.edu.ar); DE FLORIAN, Daniel (ICAS-UNSAM)

Contribution ID: **23** Type: **not specified**

Electroweak Physics at the EIC

Thursday, 21 November 2024 12:00 (25 minutes)

Presenter: MANTRY, Sonny (University of North Georgia)

Contribution ID: **24** Type: **not specified**

TBA

Contribution ID: **25** Type: **not specified**

The Big Questions of Particle Theory

Presenter: MEADE, Patrick (Stony Brook)

Contribution ID: **26** Type: **not specified**

BSM at the Muon Synchrotron Ion Collider: Let the MuSIC begin!

Friday, 22 November 2024 10:30 (20 minutes)

Presenter: TRIFINOPOULOS, Sokratis (MIT)

Contribution ID: **27** Type: **not specified**

Event shape analysis for DIS at the EIC

Thursday, 21 November 2024 14:50 (20 minutes)

Presenter: Dr EE, June-Haak (LANL)

Contribution ID: **28** Type: **not specified**

Diffraction and small-x dynamics at the EIC

Thursday, 21 November 2024 14:25 (20 minutes)

Presenter: SCHINDLER, Stella (MIT)

Contribution ID: **29** Type: **not specified**

Baryon number dynamics from RHIC to the EIC

Thursday, 21 November 2024 14:00 (20 minutes)

Presenter: FRENKLAKH, David (Brookhaven National Laboratory)

Contribution ID: **30** Type: **not specified**

Discussion

Contribution ID: **31** Type: **not specified**

QCD and the Early Universe

Presenter: SUMBERA, Michal (NPI/ASCR)

Contribution ID: **32** Type: **not specified**

QCD and the Early Universe

Thursday, 21 November 2024 15:45 (20 minutes)

Presenter: SUMBERA, Michal (ASCR)

Contribution ID: **33** Type: **not specified**

Announcements

Thursday, 21 November 2024 08:50 (10 minutes)

Presenter: DAWSON, Sally (BNL)

Contribution ID: **34** Type: **not specified**

Announcements

Friday, 22 November 2024 08:55 (5 minutes)

Presenter: DAWSON, Sally (BNL)