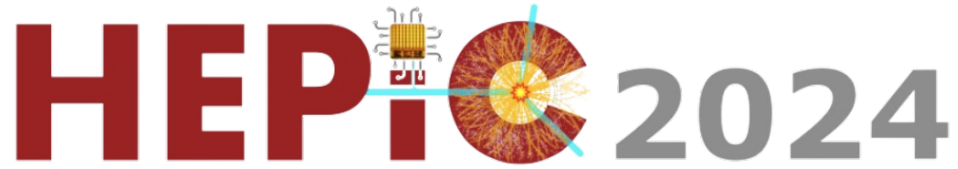


HEP-IC



# Report of Contributions

Contribution ID: 1

Type: **not specified**

# Welcome

*Tuesday, 30 April 2024 09:20 (10 minutes)*

**Primary author:** CARINI, Gabriella (Brookhaven National Laboratory)

**Presenter:** CARINI, Gabriella (Brookhaven National Laboratory)

**Session Classification:** Organizational session

Contribution ID: 2

Type: **not specified**

## Purpose of the meeting

*Tuesday, 30 April 2024 09:30 (20 minutes)*

**Primary author:** DEPTUCH, Grzegorz (BNL)

**Presenter:** DEPTUCH, Grzegorz (BNL)

**Session Classification:** Organizational session

Contribution ID: 3

Type: **not specified**

## Introduction to the EIC

*Tuesday, 30 April 2024 09:50 (30 minutes)*

**Primary author:** ASCHENAUER, E. C. (BNL)

**Presenter:** ASCHENAUER, E. C. (BNL)

**Session Classification:** Organizational session

Contribution ID: 4

Type: **not specified**

## Argonne National Laboratory

*Tuesday, 30 April 2024 10:30 (15 minutes)*

**Primary author:** MICELI, Antonino (Argonne National Laboratory)

**Presenter:** MICELI, Antonino (Argonne National Laboratory)

**Session Classification:** Overview of group activities

Contribution ID: 5

Type: **not specified**

## Brookhaven National Laboratory

*Tuesday, 30 April 2024 10:45 (15 minutes)*

**Primary author:** DEPTUCH, Grzegorz (BNL)

**Presenter:** DEPTUCH, Grzegorz (BNL)

**Session Classification:** Overview of group activities

Contribution ID: 6

Type: **not specified**

## Columbia University

*Tuesday, 30 April 2024 11:00 (15 minutes)*

**Presenter:** BROOIJMANS, Gustaaf (Columbia University)

**Session Classification:** Overview of group activities

Contribution ID: 7

Type: **not specified**

## **Cornell University (on hold)**

**Primary author:** THOM-LEVY, Julia (Cornell University)

**Presenter:** THOM-LEVY, Julia (Cornell University)

**Session Classification:** Overview of group activities



Contribution ID: 8

Type: **not specified**

## Fermilab

*Tuesday, 30 April 2024 12:00 (15 minutes)*

Farah Fahim, Microelectronics Division Head, Fermilab

**Primary author:** FAHIM, Farah (Fermilab)

**Presenter:** FAHIM, Farah (Fermilab)

**Session Classification:** Overview of group activities

Contribution ID: 9

Type: **not specified**

## University of Hawaii

*Tuesday, 30 April 2024 12:15 (15 minutes)*

**Primary author:** MURMANN, Boris (University of Hawaii)

**Presenter:** MURMANN, Boris (University of Hawaii)

**Session Classification:** Overview of group activities

Contribution ID: **10**

Type: **not specified**

## **UC Santa Barbara (withdrawn)**

**Session Classification:** Overview of group activities

Contribution ID: 11

Type: **not specified**

## Lawrence Berkeley National Laboratory

*Tuesday, 30 April 2024 13:30 (15 minutes)*

**Primary author:** PAPADOPOULOU, Aikaterini (Lawrence Berkeley National Laboratory)

**Presenter:** PAPADOPOULOU, Aikaterini (Lawrence Berkeley National Laboratory)

**Session Classification:** Overview of group activities

Contribution ID: 12

Type: **not specified**

## University of Pennsylvania

*Tuesday, 30 April 2024 13:45 (15 minutes)*

**Primary author:** NEWCOMER, Mitch (Univ. of Pennsylvania)

**Presenter:** NEWCOMER, Mitch (Univ. of Pennsylvania)

**Session Classification:** Overview of group activities

Contribution ID: 13

Type: **not specified**

## UC Davis (on hold)

**Primary author:** GUBBI, Kevin (UC Davis)

**Presenter:** GUBBI, Kevin (UC Davis)

**Session Classification:** Overview of group activities

Contribution ID: 14

Type: **not specified**

## SLAC National Laboratory

*Tuesday, 30 April 2024 14:00 (15 minutes)*

**Primary author:** ROTA, Lorenzo (SLAC National Laboratory)

**Presenter:** ROTA, Lorenzo (SLAC National Laboratory)

**Session Classification:** Overview of group activities

Contribution ID: 15

Type: **not specified**

## Southern Methodist University

*Tuesday, 30 April 2024 11:15 (15 minutes)*

**Primary author:** GUI, Ping (Southern Methodist University)

**Presenter:** GUI, Ping (Southern Methodist University)

**Session Classification:** Overview of group activities



Contribution ID: **16**

Type: **not specified**

## **UT Arlington**

*Tuesday, 30 April 2024 14:30 (15 minutes)*

**Primary author:** ASAADI, Jonathan (University of Texas at Arlington)

**Presenter:** ASAADI, Jonathan (University of Texas at Arlington)

**Session Classification:** Overview of group activities

Contribution ID: 17

Type: **not specified**

## The CERN experience

*Wednesday, 1 May 2024 08:00 (30 minutes)*

**Primary author:** KLOUKINAS, Kostas (CERN)

**Presenter:** KLOUKINAS, Kostas (CERN)

**Session Classification:** Collaborating across institutions

Contribution ID: 18

Type: **not specified**

## Synergy with DRD and RDC mechanisms

*Wednesday, 1 May 2024 17:40 (20 minutes)*

**Primary author:** DRAGONE, Angelo (SLAC)

**Presenter:** DRAGONE, Angelo (SLAC)

**Session Classification:** Collaborations and partnerships with other research agencies and industry

Contribution ID: 19

Type: **not specified**

## Open discussion

*Tuesday, 30 April 2024 16:00 (50 minutes)*

Open discussion on barriers and potential solutions related to:

Methods and rules for IP sharing,

Tools interoperability,

Acknowledgment of authorship,

Legal agreements

**Session Classification:** Collaborating across institutions

Contribution ID: **20**

Type: **not specified**

## **Monolithic stitched pixel sensor**

*Wednesday, 1 May 2024 08:30 (20 minutes)*

**Primary author:** DE MELO, Joao (Brookhaven National Laboratory)

**Presenter:** DE MELO, Joao (Brookhaven National Laboratory)

**Session Classification:** New development efforts, trends and plans

Contribution ID: 21

Type: **not specified**

## Trends in pixel readout chip designs for high rate and radiation

*Wednesday, 1 May 2024 08:50 (20 minutes)*

**Primary author:** GORNI, Dominik (Brookhaven National Laboratory)

**Presenter:** GORNI, Dominik (Brookhaven National Laboratory)

**Session Classification:** New development efforts, trends and plans

Contribution ID: 22

Type: **not specified**

## Precision timing in HEP experiments

*Wednesday, 1 May 2024 09:10 (20 minutes)***Primary author:** BRAGA, Davide (member@fnal.gov)**Presenters:** BRAGA, Davide (member@fnal.gov); FREDENBURG, Jeffrey (Fermi National Laboratory)**Session Classification:** New development efforts, trends and plans

Contribution ID: 23

Type: **not specified**

## Front-ends for extreme conditions

*Wednesday, 1 May 2024 11:30 (20 minutes)*

**Primary author:** GRACE, Carl (Lawrence Berkeley National Laboratory)

**Presenter:** GRACE, Carl (Lawrence Berkeley National Laboratory)

**Session Classification:** New development efforts, trends and plans



Contribution ID: 24

Type: **not specified**

# Unconventional computing approaches using time, stochasticity, and physics

*Wednesday, 1 May 2024 09:50 (40 minutes)*

**Primary author:** DANIELS, Matthew (National Institute of Standards and Technology)

**Presenter:** DANIELS, Matthew (National Institute of Standards and Technology)

**Session Classification:** New development efforts, trends and plans

Contribution ID: 25

Type: **not specified**

## Wide band-gap semiconductors

*Wednesday, 1 May 2024 09:30 (20 minutes)*

**Primary author:** MANDAL, Soumyajit (Brookhaven National Laboratory)

**Presenter:** MANDAL, Soumyajit (Brookhaven National Laboratory)

**Session Classification:** New development efforts, trends and plans

Contribution ID: 26

Type: **not specified**

## Integrated silicon photonics

*Wednesday, 1 May 2024 10:50 (40 minutes)*

**Primary author:** SAXENA, Vishal (University of Delaware)

**Presenter:** SAXENA, Vishal (University of Delaware)

**Session Classification:** New development efforts, trends and plans

Contribution ID: 27

Type: **not specified**

## Cryogenic Device Modeling

*Wednesday, 1 May 2024 11:50 (20 minutes)*

**Primary author:** SEIDEL, Olivia (Fermi National Laboratory)

**Presenter:** SEIDEL, Olivia (Fermi National Laboratory)

**Session Classification:** New development efforts, trends and plans

Contribution ID: 28

Type: **not specified**

## **Signal processing and filtering: analog, digital and beyond (AI?)**

*Wednesday, 1 May 2024 13:30 (20 minutes)*

**Primary author:** RESCIA, Sergio (BNL)

**Presenter:** RESCIA, Sergio (BNL)

**Session Classification:** New development efforts, trends and plans

Contribution ID: 29

Type: **not specified**

## **Circuits and devices for edge AI**

*Wednesday, 1 May 2024 13:50 (40 minutes)*

**Primary author:** SALMAN, Emre (Stony Brook University)

**Presenter:** SALMAN, Emre (Stony Brook University)

**Session Classification:** New development efforts, trends and plans

Contribution ID: **30**

Type: **not specified**

## **Verification with Cocotb**

*Wednesday, 1 May 2024 14:30 (20 minutes)*

**Primary author:** KEENER, Paul (University of Pennsylvania)

**Presenter:** KEENER, Paul (University of Pennsylvania)

**Session Classification:** New development efforts, trends and plans

Contribution ID: **31**

Type: **not specified**

## Verification IP development

*Wednesday, 1 May 2024 14:50 (20 minutes)*

**Primary author:** HOFF, Jim (Fermilab)

**Presenter:** HOFF, Jim (Fermilab)

**Session Classification:** New development efforts, trends and plans



Contribution ID: 32

Type: **not specified**

## Common methodologies, cloud-based tools, technologies, modeling

*Thursday, 2 May 2024 09:20 (20 minutes)***Primary author:** VARDE, Amit (Keysight)**Presenter:** VARDE, Amit (Keysight)**Session Classification:** Collaborations and partnerships with other research agencies and industry

Contribution ID: 33

Type: **not specified**

## Open-source silicon enabling HEP-IC opportunities

*Thursday, 2 May 2024 09:40 (40 minutes)*

**Primary author:** ANSELL, Timothy (Arc PBC)

**Presenter:** ANSELL, Timothy (Arc PBC)

**Session Classification:** Collaborations and partnerships with other research agencies and industry

Contribution ID: 34

Type: **not specified**

## Open-source ASIC ecosystem

*Wednesday, 1 May 2024 15:45 (20 minutes)*

**Primary author:** PRAKASH, Tarun (Lawrence Berkeley National Laboratory)

**Presenter:** PRAKASH, Tarun (Lawrence Berkeley National Laboratory)

**Session Classification:** New development efforts, trends and plans

Contribution ID: 35

Type: **not specified**

## Open discussion (cancelled)

*Wednesday, 1 May 2024 16:45 (35 minutes)*

Open discussion on future ASIC needs for HEP

**Session Classification:** New development efforts, trends and plans

Contribution ID: **36**

Type: **not specified**

## Talk from DOE

*Wednesday, 1 May 2024 17:20 (20 minutes)*

**Primary author:** MARSISKE, Helmut (DOE Headquarters)

**Presenter:** MARSISKE, Helmut (DOE Headquarters)

**Session Classification:** Collaborations and partnerships with other research agencies and industry

Contribution ID: 37

Type: **not specified**

## Advantages for HEP from synergies with industry

*Tuesday, 30 April 2024 15:20 (20 minutes)*

**Primary author:** MOSTAFANEZHAD, Isar (Nalu Scientific)

**Presenter:** MOSTAFANEZHAD, Isar (Nalu Scientific)

**Session Classification:** Collaborations and partnerships with other research agencies and industry

Contribution ID: 38

Type: **not specified**

## Working with National Labs and technology transfer

*Tuesday, 30 April 2024 15:40 (20 minutes)*

**Primary author:** UPADHYA, Poornima (Brookhaven National Laboratory )

**Co-author:** MILLER, Vanessa (Brookhaven National Laboratory)

**Presenter:** UPADHYA, Poornima (Brookhaven National Laboratory )

**Session Classification:** Collaborations and partnerships with other research agencies and industry

Contribution ID: 39

Type: **not specified**

## Report on the HEPIC internship program

*Thursday, 2 May 2024 10:45 (15 minutes)*

**Primary author:** HOROWITZ, Mark (Stanford University)

**Presenter:** HOROWITZ, Mark (Stanford University)

**Session Classification:** New collaborations and training initiatives



Contribution ID: 40

Type: **not specified**

## Training initiatives by commercial tool vendors

*Thursday, 2 May 2024 11:00 (15 minutes)*

**Primary author:** ST. JOHN, Nicholas (Brookhaven National Laboratory)

**Presenter:** ST. JOHN, Nicholas (Brookhaven National Laboratory)

**Session Classification:** New collaborations and training initiatives

Contribution ID: 41

Type: **not specified**

## Other training opportunities

*Thursday, 2 May 2024 11:15 (15 minutes)*

**Primary authors:** IQBAL, Md Arif (Brookhaven National Laboratory); MAJ, Piotr (Brookhaven National Laboratory)

**Presenters:** IQBAL, Md Arif (Brookhaven National Laboratory); MAJ, Piotr (Brookhaven National Laboratory)

**Session Classification:** New collaborations and training initiatives

Contribution ID: 42

Type: **not specified**

## **Cross-institutional training and continuous education in ASIC design**

*Thursday, 2 May 2024 11:30 (15 minutes)*

**Presenter:** MURMANN, Boris (University of Hawaii)

**Session Classification:** New collaborations and training initiatives

Contribution ID: 43

Type: **not specified**

## A Review of the CHIPS for America Research and Development Programs

*Thursday, 2 May 2024 08:30 (30 minutes)*

**Primary author:** HOSKINS, Brian (National Institute of Standards and Technology)

**Presenter:** HOSKINS, Brian (National Institute of Standards and Technology)

**Session Classification:** Collaborations and partnerships with other research agencies and industry

Contribution ID: 44

Type: **not specified**

## Recent experience of inter-institutional projects

*Thursday, 2 May 2024 09:00 (20 minutes)*

**Primary author:** GRACE, Carl (Lawrence Berkeley National Laboratory)

**Presenter:** GRACE, Carl (Lawrence Berkeley National Laboratory)

**Session Classification:** Collaborations and partnerships with other research agencies and industry

Contribution ID: 45

Type: **not specified**

## Open discussion

Open discussion on barriers and potential solutions related to:

Engagement with federal agencies,

Contracts with providers,

License agreements,

NDAs,

DOE external contracts (CRADA, WFO) approval processes

**Session Classification:** Collaborations and partnerships with other research agencies and industry

Contribution ID: 46

Type: **not specified**

## Massachusetts Institute of Technology

*Tuesday, 30 April 2024 14:45 (15 minutes)*

**Primary author:** LALIC, Jelena (MIT)

**Presenter:** LALIC, Jelena (MIT)

**Session Classification:** Overview of group activities

Contribution ID: 47

Type: **not specified**

# Cryogenic Front-end ASICs for Low-Noise Charge and Light Readout

*Wednesday, 1 May 2024 12:10 (20 minutes)*

**Primary author:** MUKIM, Prashansa (Brookhaven National Laboratory)

**Presenter:** MUKIM, Prashansa (Brookhaven National Laboratory)

**Session Classification:** New development efforts, trends and plans



Contribution ID: 48

Type: **not specified**

## Superconducting

*Wednesday, 1 May 2024 15:25 (20 minutes)*

**Primary author:** WOODWORTH, Kyle (Fermi National Laboratory)

**Presenter:** WOODWORTH, Kyle (Fermi National Laboratory)

**Session Classification:** New development efforts, trends and plans