

# **A detector for a Higgs factory and beyond: ILD**



## **Report of Contributions**

Contribution ID: 1

Type: **not specified**

## Welcome, Status of ILD

*Monday, 15 January 2024 13:00 (30 minutes)*

**Presenters:** KAWAGOE, Kiyotomo (Kyushu University); BEHNKE, Ties

**Session Classification:** Plenary

Contribution ID: 2

Type: **not specified**

## **ILD: Status and recent activities**

**Session Classification:** Plenary

Contribution ID: 3

Type: **not specified**

# Experimentation at the FCC-ee: Challenges and Opportunities

*Monday, 15 January 2024 13:30 (30 minutes)*

**Presenter:** ALEKSA, Martin (CERN)

**Session Classification:** Plenary

Contribution ID: 4

Type: **not specified**

# Experimentation at an asymmetric Higgs factory

*Monday, 15 January 2024 14:00 (30 minutes)*

**Presenter:** LAUDRAIN, Antoine (Deutsches Elektronen-Synchrotron (DE))

**Session Classification:** Plenary

Contribution ID: 6

Type: **not specified**

## **IDT news**

*Monday, 15 January 2024 14:30 (30 minutes)*

**Presenter:** STAPNES, Steinar (CERN)

**Session Classification:** Plenary

Contribution ID: 7

Type: **not specified**

## Linking ILD to the DRD Organisation

*Tuesday, 16 January 2024 11:40 (20 minutes)*

**Presenter:** CONTARDO, Didier

**Session Classification:** Plenary

Contribution ID: 8

Type: **not specified**

## ECFA Focus topics

*Tuesday, 16 January 2024 12:30 (30 minutes)*

**Presenter:** LIST, Jenny (Deutsches Elektronen-Synchrotron (DE))

**Session Classification:** Plenary



Contribution ID: 9

Type: **not specified**

## Priorities for the future analyses in ILD

*Wednesday, 17 January 2024 09:00 (30 minutes)*

**Presenter:** ZARNECKI, Aleksander Filip (University of Warsaw)

**Session Classification:** Plenary

Contribution ID: **10**

Type: **not specified**

## highlights

**Session Classification:** Plenary

Contribution ID: 11

Type: **not specified**

## **An ILD detector variant at CEPC**

*Tuesday, 16 January 2024 09:00 (30 minutes)*

**Presenter:** RUAN, Manqi (IHEP-LLR/CERN)

**Session Classification:** Plenary

Contribution ID: 12

Type: **not specified**

## **CLD: A detector for the FCC-ee**

*Tuesday, 16 January 2024 09:30 (30 minutes)*

**Presenter:** SAILER, Andre (CERN)

**Session Classification:** Plenary

Contribution ID: 13

Type: **not specified**

## **ILD concept development and simulation models**

*Tuesday, 16 January 2024 10:00 (30 minutes)*

**Presenter:** JEANS, Daniel

**Session Classification:** Plenary

Contribution ID: 14

Type: **not specified**

## Key4hep and ILD software

*Tuesday, 16 January 2024 11:00 (20 minutes)*

**Presenter:** MADLENER, Thomas (Deutsches Elektronen-Synchrotron (DE))

**Session Classification:** Plenary

Contribution ID: 15

Type: **not specified**

## **discussion: transition to key4hep**

*Wednesday, 17 January 2024 11:45 (20 minutes)*

**Session Classification:** Plenary

Contribution ID: 16

Type: **not specified**

## **(High level) reconstruction in ILD**

*Tuesday, 16 January 2024 11:20 (20 minutes)*

**Presenter:** GAEDE, Frank

**Session Classification:** Plenary



Contribution ID: 17

Type: **not specified**

## **Electronics as a driver for future detectors**

*Tuesday, 16 January 2024 12:00 (30 minutes)*

**Presenter:** DE LA TAILLE, Christophe (OMEGA (FR))

**Session Classification:** Plenary

Contribution ID: **18**

Type: **not specified**

## **Final results from stau analysis**

*Wednesday, 17 January 2024 09:30 (20 minutes)*

**Presenter:** BERGGREN, Mikael (Deutsches Elektronen-Synchrotron (DE))

**Session Classification:** Plenary

Contribution ID: 19

Type: **not specified**

## **Probing Gauge-Higgs Unification models at the ILC with di-quark forward-backward asymmetry at center-of-mass energies above the Z mass.**

*Wednesday, 17 January 2024 09:50 (20 minutes)*

**Primary authors:** IRLES, Adrian (IFIC (CSIC/UV) Valencia); MÁRQUEZ HERNÁNDEZ, Jesús P. (IFIC (CSIC/UV))

**Presenters:** IRLES, Adrian (IFIC (CSIC/UV) Valencia); MÁRQUEZ HERNÁNDEZ, Jesús P. (IFIC (CSIC/UV))

**Session Classification:** Plenary

Contribution ID: 20

Type: **not specified**

# Probing CPV mixing in the Higgs sector in VBF at 1 TeV ILC

*Wednesday, 17 January 2024 10:10 (20 minutes)*

**Primary authors:** VUKASINOVIC, Natasa (University of Belgrade (RS)); VUKASINOVIC, Natasa (VINCA Institute of Nuclear Sciences, University of Belgrade)

**Presenters:** VUKASINOVIC, Natasa (University of Belgrade (RS)); VUKASINOVIC, Natasa (VINCA Institute of Nuclear Sciences, University of Belgrade)

**Session Classification:** Plenary

Contribution ID: **21**

Type: **not specified**

## TPC-Introduction

*Monday, 15 January 2024 15:30 (20 minutes)*

**Presenters:** COLAS, Paul (DAPNIA - Centre d'Etudes de Saclay (CEN Saclay)); COLAS, Paul (Université Paris-Saclay (FR))

**Session Classification:** Parallel 1

Contribution ID: 22

Type: **not specified**

## **TPC in a circular collider environment**

*Monday, 15 January 2024 15:50 (20 minutes)*

**Presenters:** JEANS, Daniel; JEANS, Daniel (High Energy Accelerator Research Organization (JP))

**Session Classification:** Parallel 1

Contribution ID: 23

Type: **not specified**

## **The Alice TPC in lead-lead collisions at LHC RUN3 : space-charge corrections**

*Monday, 15 January 2024 16:10 (20 minutes)*

**Presenter:** KLEINER, Matthias (Goethe University Frankfurt (DE))

**Session Classification:** Parallel 1

Contribution ID: 24

Type: **not specified**

## Status of Pixel TPC R&D

*Monday, 15 January 2024 16:30 (20 minutes)*

**Presenter:** KLUIT, Peter (Nikhef National institute for subatomic physics (NL))

**Session Classification:** Parallel 1



Contribution ID: 25

Type: **not specified**

## **Gating ideas and gating discussion**

*Monday, 15 January 2024 16:50 (20 minutes)*

**Presenter:** SETTLES, Ron

**Session Classification:** Parallel 1

Contribution ID: 26

Type: **not specified**

## CMOS technology Overview

*Monday, 15 January 2024 17:10 (20 minutes)*

**Presenter:** WINTER, Marc (Centre National de la Recherche Scientifique (FR))

**Session Classification:** Parallel 1

Contribution ID: 27

Type: **not specified**

## **Adding precise timing to detectors (T.b.c)**

*Monday, 15 January 2024 17:30 (20 minutes)*

**Presenters:** KRUEGER, Katja (DESY); KRUGER, Katja (Deutsches Elektronen-Synchrotron (DE))

**Session Classification:** Parallel 1

Contribution ID: 28

Type: **not specified**

## Calorimeters for ILD

*Tuesday, 16 January 2024 16:00 (30 minutes)*

**Presenter:** BOUDRY, Vincent (LLR – Institut Polytechnique de Paris / CNRS-IN2P3)

**Session Classification:** Parallel 1

Contribution ID: 29

Type: **not specified**

## **Rates on Calorimeters in the several energy scenarios**

*Tuesday, 16 January 2024 16:30 (20 minutes)*

**Presenters:** MEKHEMAR, Khalid (University of Hawaii at Manoa); BOUDRY, Vincent (LLR – Institut Polytechnique de Paris / CNRS-IN2P3)

**Session Classification:** Parallel 1

Contribution ID: **30**

Type: **not specified**

## **Importance of the performance on jets reconstruction at 250 GeV center of mass**

*Tuesday, 16 January 2024 16:50 (30 minutes)*

**Presenter:** BRIENT, Jean-Claude (Centre National de la Recherche Scientifique (FR))

**Session Classification:** Parallel 1

Contribution ID: **31**

Type: **not specified**

## **Discussion time**

*Monday, 15 January 2024 17:50 (40 minutes)*

**Session Classification:** Parallel 1

Contribution ID: 32

Type: **not specified**

## Key4hep transition for ILD

*Monday, 15 January 2024 15:30 (1 hour)*

- transition of ILD production software to key4hep
- run MarlinWrapper for existing reconstruction
  - from now on ?
- develop new algorithms in Gaudi/EDM4hep ?
- create EDM4hep for new productions ?
- related topics:
  - (automated) validation w/ ILDPerformance
  - adaptation of ILD production scripts in ILCDirac
  - ilcinstall vs. spack installations (source code, directory layout,...)

**Presenters:** HENSEL, Carsten (CBPF - Brazilian Center for Physics Research (BR)); JEANS, Daniel; GAEDE, Frank

**Session Classification:** Parallel 2



Contribution ID: 33

Type: **not specified**

## Flavour tagging tools

*Monday, 15 January 2024 17:00 (1 hour)*

- ML inference in Marlin/Gaudi
  - using libtorch, ONNX,...
- implementation of ParticleTransformer in Key4hep (FCC)
- comparison to FCC results -....

**Presenters:** MEYER, Mareike; SUEHARA, Taikan (ICEPP, The University of Tokyo)

**Session Classification:** Parallel 2

Contribution ID: **34**

Type: **not specified**

## Discussion time

*Tuesday, 16 January 2024 17:20 (25 minutes)*

**Session Classification:** Parallel 1

Contribution ID: 35

Type: **not specified**

## **New ideas on forward calorimeter design for ILD**

*Tuesday, 16 January 2024 14:00 (20 minutes)*

**Presenter:** WILSON, Graham (The University of Kansas (US))

**Session Classification:** Parallel 3

Contribution ID: 36

Type: **not specified**

## **Adapting the ILD vertex detector to FCCee context and related R&D**

*Tuesday, 16 January 2024 14:20 (20 minutes)*

**Presenter:** BESSON, Auguste Guillaume (Centre National de la Recherche Scientifique (FR))

**Session Classification:** Parallel 3

Contribution ID: 37

Type: **not specified**

## **New particle identification calibration for ILD**

*Tuesday, 16 January 2024 14:40 (20 minutes)*

**Presenter:** EINHAUS, Ulrich (DESY)

**Session Classification:** Parallel 3

Contribution ID: **38**

Type: **not specified**

## Improvements in V0 performance

*Tuesday, 16 January 2024 15:00 (15 minutes)*

**Presenters:** AUMILLER, Sara (DESY); EINHAUS, Ulrich (DESY)

**Session Classification:** Parallel 3

Contribution ID: 39

Type: **not specified**

## Status of pixel TPC reconstruction

*Tuesday, 16 January 2024 15:15 (15 minutes)*

**Presenter:** KLAMKA, Jan (University of Warsaw)

**Session Classification:** Parallel 3

Contribution ID: 40

Type: **not specified**

## Focus topic reports

*Tuesday, 16 January 2024 16:00 (1 hour)*

**Presenters:** IRLES, Adrian (IFIC (CSIC/UV) Valencia); ZARNECKI, Aleksander Filip (University of Warsaw); WILSON, Graham (The University of Kansas (US)); BOZOVIC-JELISAVCIC, Ivanka (University of Belgrade (RS)); LIST, Jenny (Deutsches Elektronen-Synchrotron (DE)); TIAN, Junping (University of Tokyo); VOS, Marcel (Univ. of Valencia and CSIC (ES)); NUNEZ PARDO DE VERA, Maria Teresa; SUEHARA, Taikan (ICEPP, The University of Tokyo); EINHAUS, Ulrich (DESY)

**Session Classification:** Parallel 3



Contribution ID: 41

Type: **not specified**

## Focus topic discussion

*Tuesday, 16 January 2024 17:00 (30 minutes)*

**Presenter:** ZARNECKI, Aleksander Filip (University of Warsaw)

**Session Classification:** Parallel 3

Contribution ID: 42

Type: **not specified**

## **Exploring hidden sectors with two-particle angular correlations at future $e^+e^-$ colliders**

*Tuesday, 16 January 2024 17:50 (20 minutes)*

**Presenter:** MUSUMECI, Emanuela (Univ. of Valencia and CSIC (ES))

**Session Classification:** Parallel 3

Contribution ID: 43

Type: **not specified**

# Optimizing the Higgs self-coupling measurement at ILC with ML

*Tuesday, 16 January 2024 18:10 (20 minutes)*

**Presenter:** BLIEWERT, Bryan

**Session Classification:** Parallel 3

Contribution ID: 44

Type: **not specified**

## Discussion

*Wednesday, 17 January 2024 12:05 (55 minutes)*

**Presenters:** KAWAGOE, Kiyotomo (Kyushu University); BEHNKE, Ties

**Session Classification:** Plenary

Contribution ID: 45

Type: **not specified**

## Instructions for dinner tonight

*Tuesday, 16 January 2024 10:30 (1 minute)*

**Presenter:** HENSEL, Carsten (CBPF - Brazilian Center for Physics Research (BR))

**Session Classification:** Plenary