

**5th DRD1 Collaboration
Meeting and Topical
Workshop Towards
Sustainable Gas Mixtures for
Future Detectors (preliminary
Agenda)**

Report of Contributions

Contribution ID: **303**

Type: **not specified**

Resistive anodes at USTC : DLC and Germanium

Friday 20 June 2025 09:00 (25 minutes)

Presenter: WANG, Xu (University of Science and Technology of China (CN))

Session Classification: Working Group 1: Technological Aspects and Developments of New Detector Structures, Common Characterization and Physics Issues

Contribution ID: **304**

Type: **not specified**

Preliminary results of 50cmX50cm μ RGroove with fast ground lines

Friday 20 June 2025 11:35 (25 minutes)

Presenter: HE, Siqu (University of Science and Technology of China (CN))

Session Classification: Working Group 1: Technological Aspects and Developments of New Detector Structures, Common Characterization and Physics Issues

Contribution ID: **305**

Type: **not specified**

Optimization of THGEM operation for timing

Friday 20 June 2025 09:50 (25 minutes)

Presenter: MAITY, Arpan (Weizmann Institute of Science (IL))

Session Classification: Working Group 1: Technological Aspects and Developments of New Detector Structures, Common Characterization and Physics Issues

Contribution ID: **306**

Type: **not specified**

The Amber TPC (tbc)

Friday 20 June 2025 11:10 (25 minutes)

Presenter: (TBD)

Session Classification: Working Group 1: Technological Aspects and Developments of New Detector Structures, Common Characterization and Physics Issues

Contribution ID: **307**

Type: **not specified**

PICOSEC revisited

Friday 20 June 2025 10:15 (25 minutes)

Presenter: BRESKIN, Amos (Weizmann Institute of Science (IL))

Session Classification: Working Group 1: Technological Aspects and Developments of New Detector Structures, Common Characterization and Physics Issues

Contribution ID: **308**

Type: **not specified**

The TPC of the CEPC reference detector

Friday 20 June 2025 09:25 (25 minutes)

Presenter: Mr SHE, Xin (Institute of High Energy Physics,Chinese Academy Of Sciences)

Session Classification: Working Group 1: Technological Aspects and Developments of New Detector Structures, Common Characterization and Physics Issues

Contribution ID: **309**

Type: **not specified**

Welcome

Wednesday 18 June 2025 09:00 (10 minutes)

Authors: PASTORE, Alessandra (Universita e INFN, Bari (IT)); MANDELLI, Beatrice (CERN); RENGÀ, Francesco (INFN Roma); MORELLO, Gianfranco (INFN e Laboratori Nazionali di Frascati (IT)); ROTH, Stefan (Rheinisch Westfaelische Tech. Hoch. (DE))

Presenters: PASTORE, Alessandra (Universita e INFN, Bari (IT)); MANDELLI, Beatrice (CERN); RENGÀ, Francesco (INFN Roma); MORELLO, Gianfranco (INFN e Laboratori Nazionali di Frascati (IT)); ROTH, Stefan (Rheinisch Westfaelische Tech. Hoch. (DE))

Session Classification: Towards Sustainable Gas Mixtures for Future Detectors (WG3)

Contribution ID: **310**

Type: **not specified**

Insight into the European F-gas regulation

Wednesday 18 June 2025 09:10 (40 minutes)

Author: WARNCKE, Kristina (öko-recherche)

Presenter: WARNCKE, Kristina (öko-recherche)

Session Classification: Towards Sustainable Gas Mixtures for Future Detectors (WG3)

Contribution ID: **311**

Type: **not specified**

The CERN Fluorinated Gases Policy

Wednesday 18 June 2025 09:50 (20 minutes)

Author: HSE, CERN

Presenter: HSE, CERN

Session Classification: Towards Sustainable Gas Mixtures for Future Detectors (WG3)

Contribution ID: 312

Type: **not specified**

From Sustainability To Circularity. The Mighty Power of Photosynthesis

Wednesday 18 June 2025 10:10 (20 minutes)

Author: TROTTA, Massimo (CNR IPCF)

Presenter: TROTTA, Massimo (CNR IPCF)

Session Classification: Towards Sustainable Gas Mixtures for Future Detectors (WG3)

Contribution ID: 313

Type: **not specified**

F-gas regulation: industrial perspectives II

Wednesday 18 June 2025 10:50 (20 minutes)

Author: SCHALLER, Benjamin (Linde)

Presenter: SCHALLER, Benjamin (Linde)

Session Classification: Towards Sustainable Gas Mixtures for Future Detectors (WG3)

Contribution ID: **314**

Type: **not specified**

EU F-gas regulation: industrial perspectives I

Wednesday 18 June 2025 10:30 (20 minutes)

Author: WENDT, Alexander (TEGA)

Presenter: WENDT, Alexander (TEGA)

Session Classification: Towards Sustainable Gas Mixtures for Future Detectors (WG3)

Contribution ID: **315**

Type: **not specified**

Gas systems and recuperation systems

Wednesday 18 June 2025 11:30 (30 minutes)

Author: ARENA, Maria Cristina (CERN)

Presenter: ARENA, Maria Cristina (CERN)

Session Classification: Towards Sustainable Gas Mixtures for Future Detectors (WG3)

Contribution ID: **316**

Type: **not specified**

Status and perspectives of GHGs emissions at LHC experiments

Wednesday 18 June 2025 14:00 (30 minutes)

Author: PUGLIESE, Gabriella (Universita e INFN, Bari (IT))

Presenter: PUGLIESE, Gabriella (Universita e INFN, Bari (IT))

Session Classification: Towards Sustainable Gas Mixtures for Future Detectors (WG3)

Contribution ID: **317**

Type: **not specified**

TBD

Wednesday 18 June 2025 12:00 (20 minutes)

Session Classification: Towards Sustainable Gas Mixtures for Future Detectors (WG3)

Contribution ID: **318**

Type: **not specified**

Sealed RPC detectors

Wednesday 18 June 2025 12:20 (20 minutes)

Author: BLANCO, Alberto (LIP)

Presenter: BLANCO, Alberto (LIP)

Session Classification: Towards Sustainable Gas Mixtures for Future Detectors (WG3)

Contribution ID: 319

Type: **not specified**

Status and perspectives of HFO-CO₂ based gas mixtures studies for RPCs in the EcoGas@GIF++ Collaboration

Wednesday 18 June 2025 14:30 (20 minutes)

Author: PICCOLO, Davide (INFN e Laboratori Nazionali di Frascati (IT))

Co-author: COLLABORATION, RPC EcoGas@GIF++

Presenter: PICCOLO, Davide (INFN e Laboratori Nazionali di Frascati (IT))

Session Classification: Towards Sustainable Gas Mixtures for Future Detectors (WG3)

Contribution ID: **320**

Type: **not specified**

Progress in the numerical optimization of environmentally friendly gas mixtures containing CO₂ and HFO

Wednesday 18 June 2025 14:50 (20 minutes)

Co-authors: STOCCO, Dario; METTING VAN RIJN, Marnik

Presenter: STOCCO, Dario

Session Classification: Towards Sustainable Gas Mixtures for Future Detectors (WG3)

Contribution ID: **321**

Type: **not specified**

Assessing the effect of CF4 on strip chambers longevity

Wednesday 18 June 2025 15:10 (20 minutes)

Author: KUZNETSOVA, Katerina (University of Florida (US))

Presenter: KUZNETSOVA, Katerina (University of Florida (US))

Session Classification: Towards Sustainable Gas Mixtures for Future Detectors (WG3)

Contribution ID: **322**

Type: **not specified**

News from WG4

Contribution ID: **323**

Type: **not specified**

News from WG4

Tuesday 17 June 2025 09:00 (15 minutes)

Session Classification: Working Group 4: Detector physics, simulations, and software tools

Contribution ID: 324

Type: **not specified**

VUV emission in noble-gas TPCs and the role of molecular additives

Wednesday 18 June 2025 15:50 (20 minutes)

Author: GONZALEZ DIAZ, Diego (Universidade de Santiago de Compostela (ES))

Presenter: GONZALEZ DIAZ, Diego (Universidade de Santiago de Compostela (ES))

Session Classification: Towards Sustainable Gas Mixtures for Future Detectors (WG3)

Contribution ID: 325

Type: **not specified**

Finding eco-friendly alternatives for highly potent greenhouse gases in drift chambers

Wednesday 18 June 2025 16:10 (20 minutes)

Author: ROTH, Stefan (Rheinisch Westfaelische Tech. Hoch. (DE))

Presenter: ROTH, Stefan (Rheinisch Westfaelische Tech. Hoch. (DE))

Session Classification: Towards Sustainable Gas Mixtures for Future Detectors (WG3)

Contribution ID: 326

Type: **not specified**

Studies and perspectives on radiator gases for dRICH detectors

Wednesday 18 June 2025 16:30 (20 minutes)

Author: TESSAROTTO, Fulvio (Universita e INFN Trieste (IT))

Presenter: TESSAROTTO, Fulvio (Universita e INFN Trieste (IT))

Session Classification: Towards Sustainable Gas Mixtures for Future Detectors (WG3)

Contribution ID: **327**

Type: **not specified**

TBD

Wednesday 18 June 2025 16:50 (20 minutes)

Author: JANSSENS, Djunes (CERN)

Presenter: JANSSENS, Djunes (CERN)

Session Classification: Towards Sustainable Gas Mixtures for Future Detectors (WG3)

Contribution ID: 328

Type: **not specified**

Multi-purpose Time Projection Chamber (MTPC) Signal Simulation Method and Experimental Verification

Tuesday 17 June 2025 09:15 (20 minutes)

The Multi-purpose Time Projection Chamber (MTPC) prototype has been successfully developed and commissioned at the CSNS Back-n white neutron beamline. Its primary design objective focuses on precise measurement of light charged particle emissions in nuclear reaction, while maintaining versatile capabilities for multiple applications including fission cross-section determination, beam profile characterization, and neutron imaging experiments.

Our research team has conducted a series of beam tests with the MTPC prototype, obtaining preliminary yet significant experimental results.

These initial findings demonstrate the detector's feasibility for conducting neutron-induced nuclear reaction measurements with satisfactory resolution.

To support the development of advanced data analysis algorithms, we have established a comprehensive simulation and analysis framework that integrates the operational principles of MTPC with established open-source tools including Geant4 for particle transport simulations, Garfield++ for drift field calculations, and ROOT for data processing.

This integrated framework enables parametric studies through systematic variation of experimental conditions, generating simulation prediction.

The synergy between experimental verification and computational modeling provides valuable insights for detector optimization and experimental design refinement, particularly in understanding complex signal formation processes within the time projection chamber.

Presenter: HAIZHENG CHEN (China Spallation Neutron Source (CSNS))

Session Classification: Working Group 4: Detector physics, simulations, and software tools

Contribution ID: **329**

Type: **not specified**

Initial steps towards a computationally efficient neBEM solver

Tuesday 17 June 2025 09:35 (20 minutes)

Presenter: SHUBHABRATA DUTTA (SINP, Kolkata)

Session Classification: Working Group 4: Detector physics, simulations, and software tools

Contribution ID: 330

Type: **not specified**

Exploring DHCAL design and performance with Graph Neural Networks

Tuesday 17 June 2025 09:55 (20 minutes)

In the context of a gas-sampling Digital Hadronic Calorimeter (DHCAL), we explore the potential of using Graph Neural Networks (GNNs) for hadron energy reconstruction and Particle Identification (PID) in future collider experiments. GEANT4 was used to model a DHCAL module and generate datasets for training and testing the performance of the GNNs. The energy resolution for these hadrons is studied in the energy range of 1 –50 GeV, with a further investigation into the resolution as a function of the incoming particle's angle and readout granularity, focusing on charged pions. Compared to traditional analysis methods, our results indicate that improved performance can be achieved even with coarser detector granularity, potentially making future DHCAL systems more cost-effective.

Presenter: BORYSOVA, Maryna (Weizmann Institute of Science)

Session Classification: Working Group 4: Detector physics, simulations, and software tools

Contribution ID: 331

Type: **not specified**

Impact of Mesh Geometry on the PICOSEC Detector: Simulations with COMSOL and Garfield++

Tuesday 17 June 2025 10:45 (20 minutes)

Presenter: VELAZQUEZ FERNANDEZ, Luisa

Session Classification: Working Group 4: Detector physics, simulations, and software tools