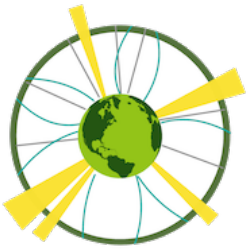

Contribution ID: **71** Type: **15 minute talk**

Eco-Friendly Resistive Plate Chamber detectors for HEP

Wednesday 14 May 2025 11:00 (15 minutes)

Resistive Plate Chamber detectors are largely used in High Energy Physics experiments given their excellent time and space resolution. They are typically operated in avalanche mode with a high-performance gas mixture based on Tetrafluoroethane (C2H2F4) and Sulphur Hexafluoride (SF6), both fluorinated high Global Warming Potential greenhouse gases.
The RPC EcoGas@GIF++ Collaboration has pursued an intensive R&D activity searching for new gas mixtures with low environmental impact while preserving high detector performance, as needed at LHC and for future applications.
In this talk, results obtained with new eco-friendly gas mixtures based on Tetrafluoropropene and carbon dioxide even under high-irradiation conditions will be presented. Long term ageing tests carried out at the CERN Gamma Irradiation Facility will be discussed together with their possible limits and future perspectives.

Author: COLLABORATION, RPC EcoGas@GIF++

Co-authors: PASTORE, Alessandra (Universita e INFN, Bari (IT)); PICCOLO, Davide (INFN e Laboratori Nazionali di Frascati (IT))

Presenter: COLLABORATION, RPC EcoGas@GIF++

Session Classification: Submitted Talks