



Contribution ID: 116

Type: Oral Presentations

Long-term Performance Studies of Resistive Plate Chambers with Environmentally Friendly HFO/CO₂ Gas Mixtures at the GIF++ Facility

Tuesday, 5 September 2023 12:40 (20 minutes)

The development and evaluation of environmentally sustainable gas mixtures for Resistive Plate Chambers (RPCs) have become increasingly important due to the high Global Warming Potential (GWP) associated with the currently mostly used gases, C₂H₂F₄ and SF₆. The ECOGAS collaboration, which includes ATLAS, CMS, ALICE, LHCb/SHiP, and the CERN EP-DT group, is dedicated to investigating the long-term performance of RPC detectors under irradiation using eco-friendly HFO/CO₂-based gas mixtures. These long-term tests conducted at the GIF++ facility complement existing research on alternative gas mixtures aimed at reducing greenhouse gas emissions. The experimental setup and the tools utilized to monitor the system are designed to study the impact of HFO/CO₂ gas mixtures on RPC performance over extended periods and high integrated charge. This abstract presents the latest results from test beams and aging test and it discusses future plans for continued evaluation of environmentally friendly gas mixtures in the context of RPC detectors.

Primary author: RIGOLETTI, Gianluca (CERN)

Presenter: RIGOLETTI, Gianluca (CERN)

Session Classification: B4