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Eco-friendly Resistive Plate Chamber detectors for future HEP applications.

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Resistive Plate Chamber detectors are largely used in current High Energy Physics experiments being typically operated in avalanche mode with large fractions of Tetrafluoroethane ($C_2H_2F_4$), a gas recently banned by the European Union due to its high Global Warming Potential (GWP).

An intense R&D activity is ongoing to improve RPC technology in view of future HEP applications.

Since a few years the RPC EcoGas@GIF++ Collaboration is putting in place a joint effort between the ALICE, ATLAS, CMS, LHCb/SHiP and CERN Communities to investigate the performance of present and future RPC generations with eco-friendly gas mixtures.

Detectors with different layout and electronics have been operated with ecological gas mixtures, with and without irradiation at the CERN Gamma Irradiation Facility (GIF++). Results of these performance studies together with plans for aging test campaign will be presented.

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Session Classification: Eco-friendly mixtures for RPC detectors