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## Preliminary aging studies of improved RPC gaps operated with HFO based mixtures

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Resistive Plate Chambers (RPC) at the CMS experiment are operated with a gas mixture containing around 95% Tetrafluoroethane ( $C_2H_2F_4$ ), commonly known as R-134a, which has a global warming potential (GWP) of 1430. In the framework of the CMS Upgrade project for the High Luminosity phase, new improved RPC detectors (iRPC) have been developed to enhance the legacy performances in the most RPC forward region of the experiment. To comply with European regulations and explore environmentally friendly gaseous mixture alternatives for long-term RPC operation, CMS RPC within the RPC EcoGas@GIF++ collaboration has launched a longevity study operating the chambers with HFO/ $CO_2$ -based eco-friendly candidate mixture. Through this poster can be found the preliminary aging analysis of the gaps resulting after around one year of irradiation at the Gamma Irradiation Facility at CERN.

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