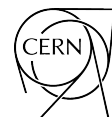


Ecogas summary EPDT chamber

G. Rigoletti



EP-DT
Detector Technologies



Outline

- Review of the operation on the EPDT chamber
- Results from HV scans

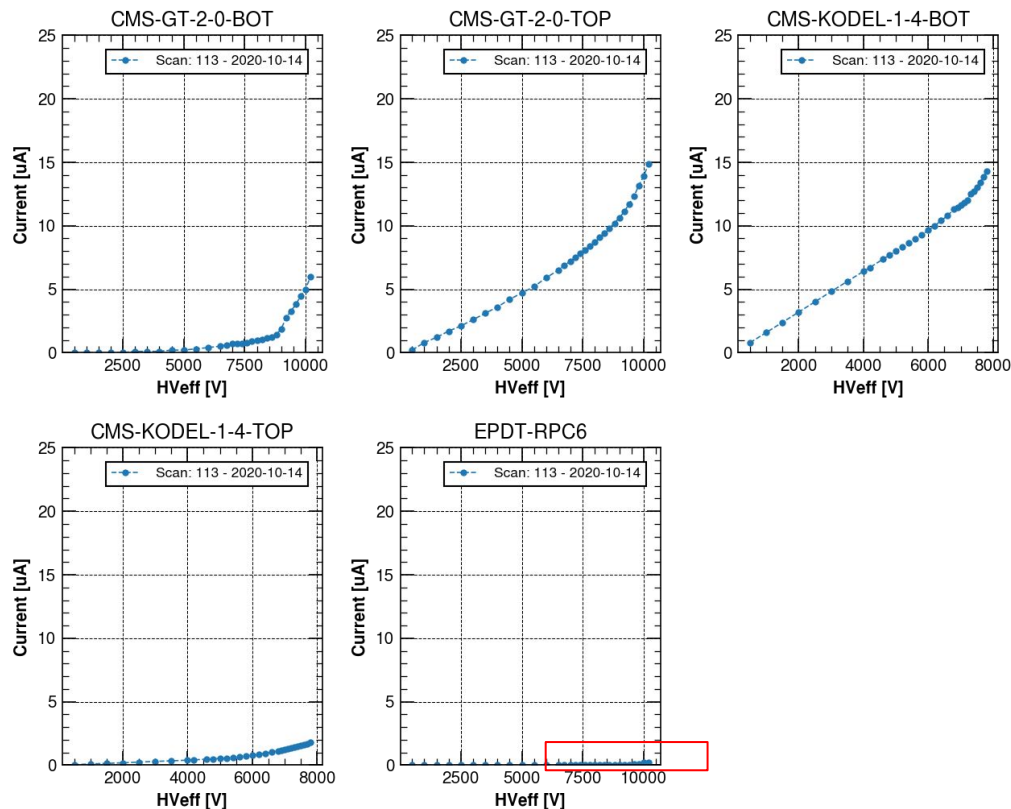
EPDT chamber

Useful information

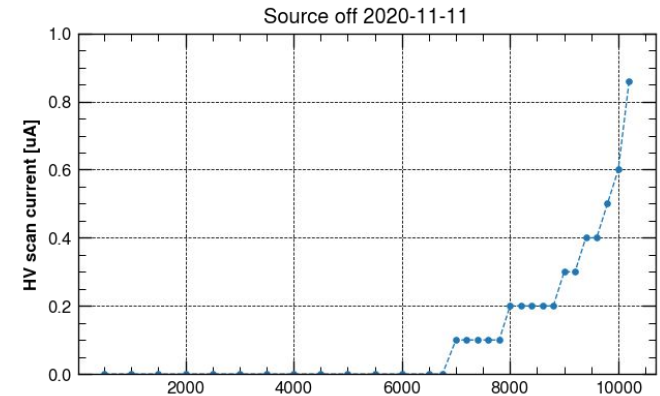
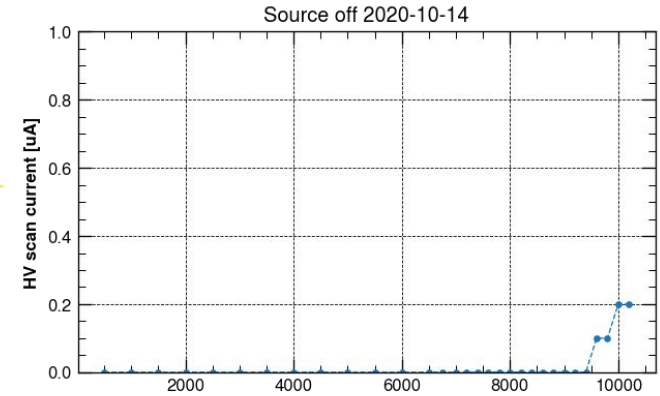
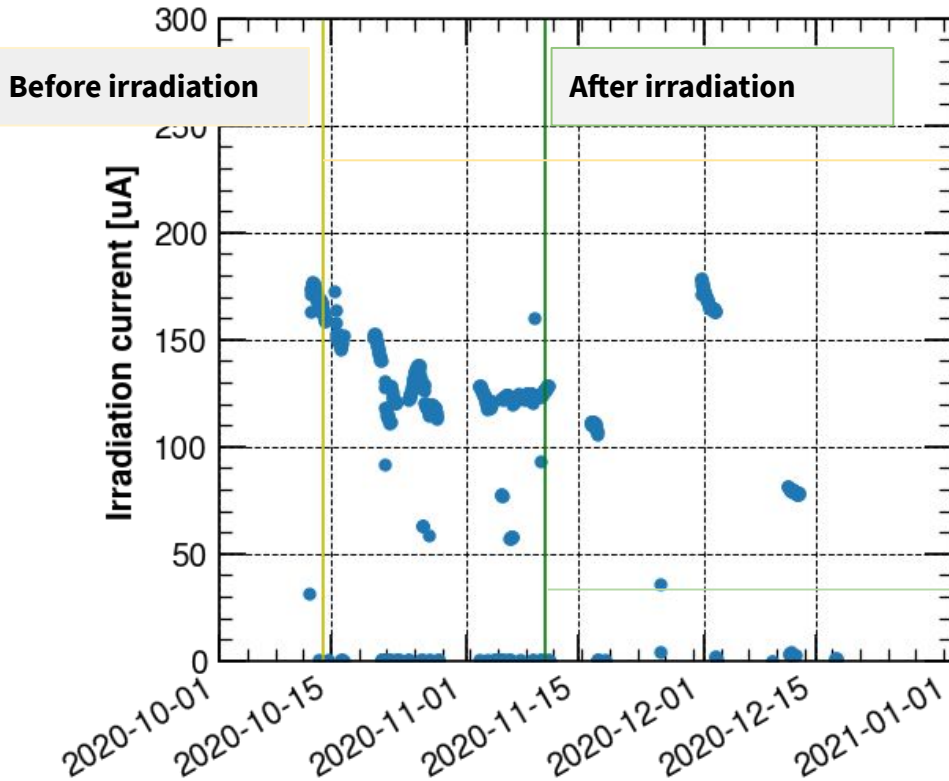
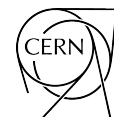
- 1 single gap, 2mm GT bakelite RPC
80cmx100cm
- Installed in mid-October 2020
- Flushed and switched on with STD gas mixture (7/10/20 to 27/01/21)
- Currently operated with ECOGAS2 gas mixture (from 27/01/21 up to now)

Ohmic current @ 4000 V = 0.0 μ A

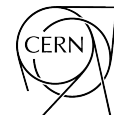
Physics current @ 9600 V = 0.1 μ A



EPDT chamber with STD mixture



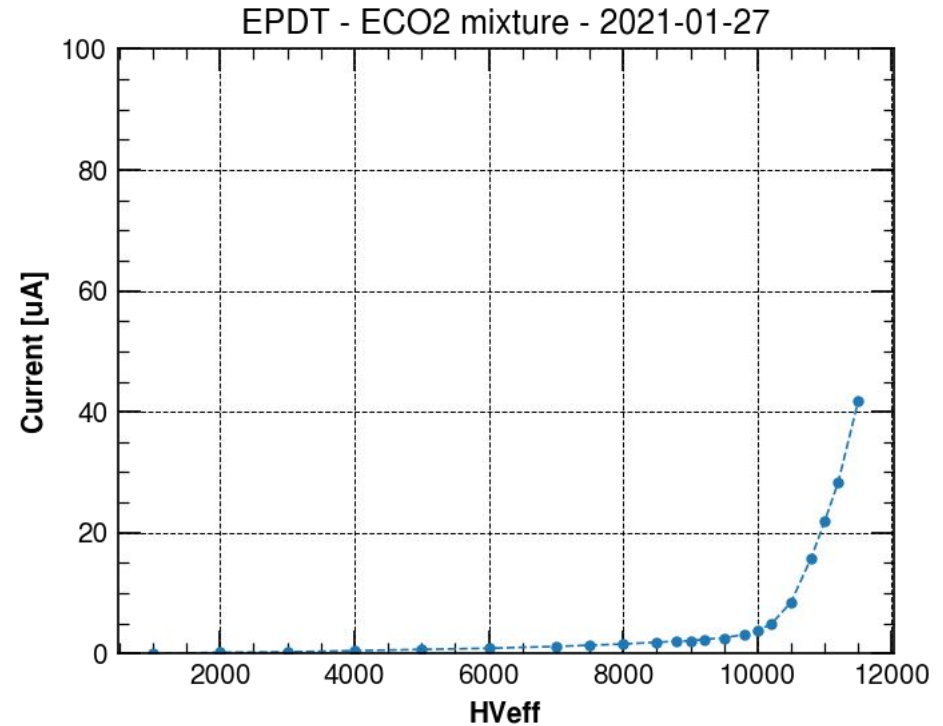
EPDT chamber with ECO2 mixture



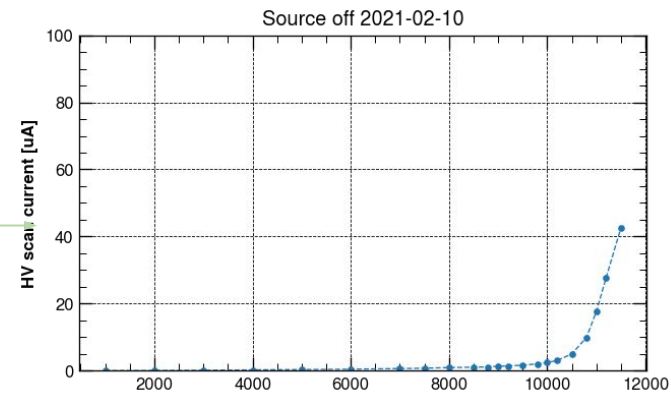
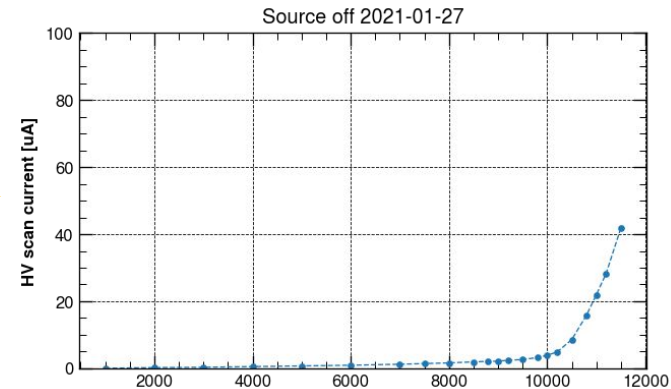
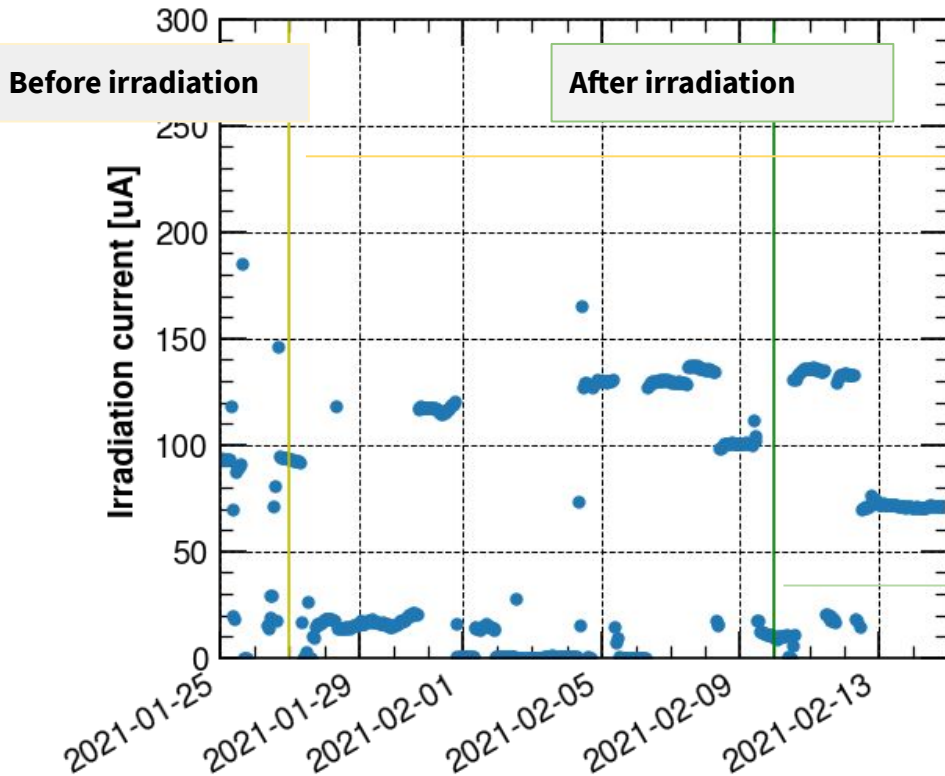
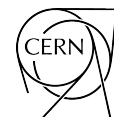
EP-DT
Detector Technologies

Before irradiation

HVeff [V]	Imon [μ A]
4000.0	0.5
11000.0	21.9



EPDT chamber with ECO₂ mixture



EPDT chamber with ECO2 mixture



Using Resistance from November:

<https://rpceogas.web.cern.ch/rpceogaselog/92>

$R = 6.91E6 \text{ MOhm} \rightarrow \rho = 12E10 \text{ Ohm*cm}$

Chamber tripped at 11.5 kV:

- Current limit set to 250 μA

HVeff can't go higher than 10 kV:

- To understand and investigate

	HVeff	HVeff - R*I	Imon
0	1000.0	1000.000000	0.000000
1	2000.0	1999.309000	0.100000
2	3000.0	2998.618000	0.200000
3	4000.0	3997.236000	0.400000
4	5000.0	4996.545000	0.500000
5	6000.0	5995.116933	0.706667
6	7000.0	6992.399000	1.100000
7	7500.0	7491.339467	1.253333
8	8000.0	7989.750167	1.483333
9	8500.0	8487.907500	1.750000
10	8800.0	8786.180000	2.000000
11	9000.0	8983.415999	2.400000
12	9200.0	9178.579001	3.100000
13	9500.0	9455.015900	6.510000
14	9800.0	9683.912004	16.799999
15	10000.0	9792.700000	30.000000
16	10200.0	9876.450767	46.823333
17	10500.0	9932.044077	82.193332
18	10800.0	9935.720234	125.076667
19	11000.0	9904.465569	158.543333
20	11200.0	9855.129740	194.626666
21	11500.0	11467.592100	4.690000

