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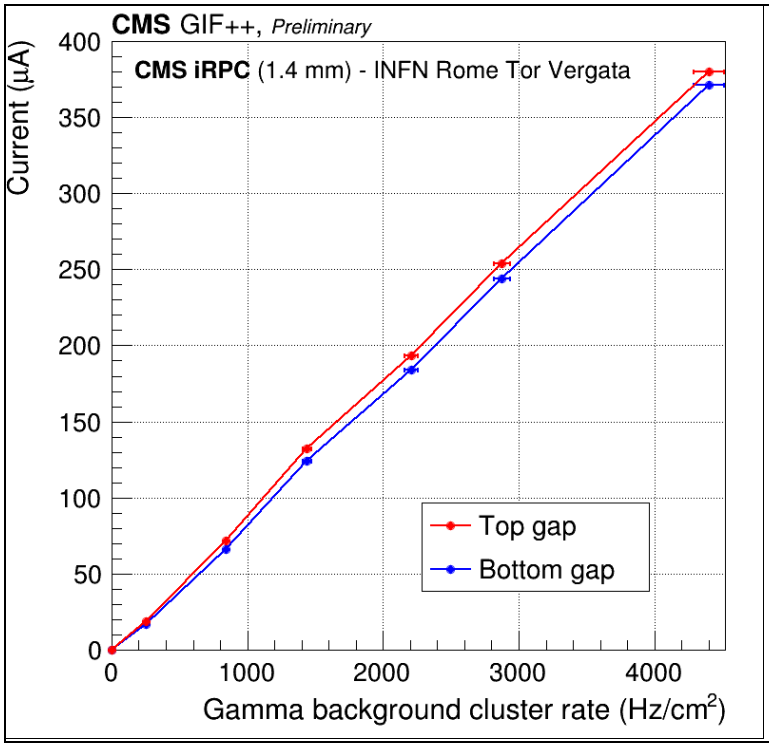
INFN-iRPC prototype. GIF++ testbeam campaign

Figures:



Shown the current of the top and bottom gaps as func
background gamma cluster rate (defined as the gamm
rate divided by the photon cluster size), evaluated at t
point voltage. A good linear behavior is obtained indi
proper estimation of the gamma clusters. pdf file C fi
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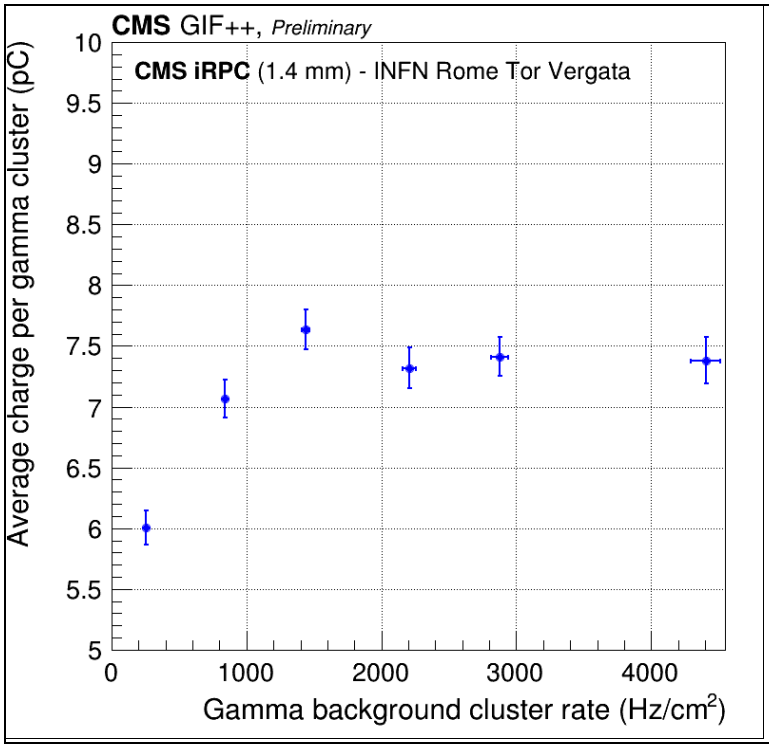

Shown the charge per hit as function of the backgrou
cluster rate (defined as the gamma counting rate divi
photon cluster size), evaluated at the working point v
charge per gamma cluster is calculated as follows

$$\langle q \rangle = \frac{I_{avg}}{(R/CLS_{\gamma}) \times A_{gap}}$$

, where: Iavg = the av
current of the top and bottom gaps; R = the gamma c
CLS𝛾 = the gamma cluster size; Agap = the
gap. This definition is consistent when a gamma parti
only with one gap. pdf file C file Contact:
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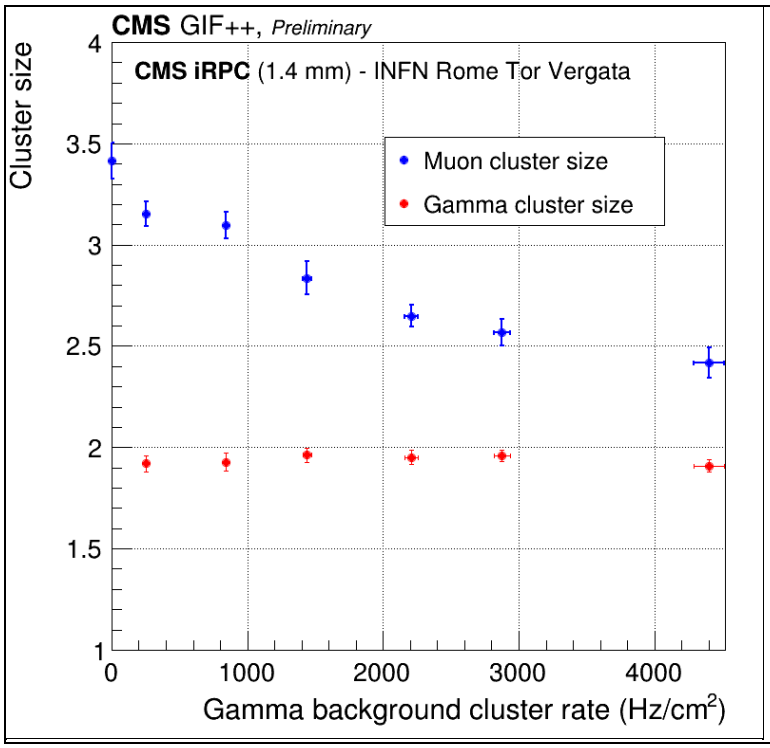

Shown the muon (blue) and gamma (red) cluster size
of the background gamma cluster rate (defined as the
counting rate divided by the photon cluster size), eval
working point voltage. The muon cluster size decreas
function of the cluster rate from 3.5 (zero backgrounc
(high background rate). The gamma cluster size is co
function of the background gamma cluster rate. pdf fi
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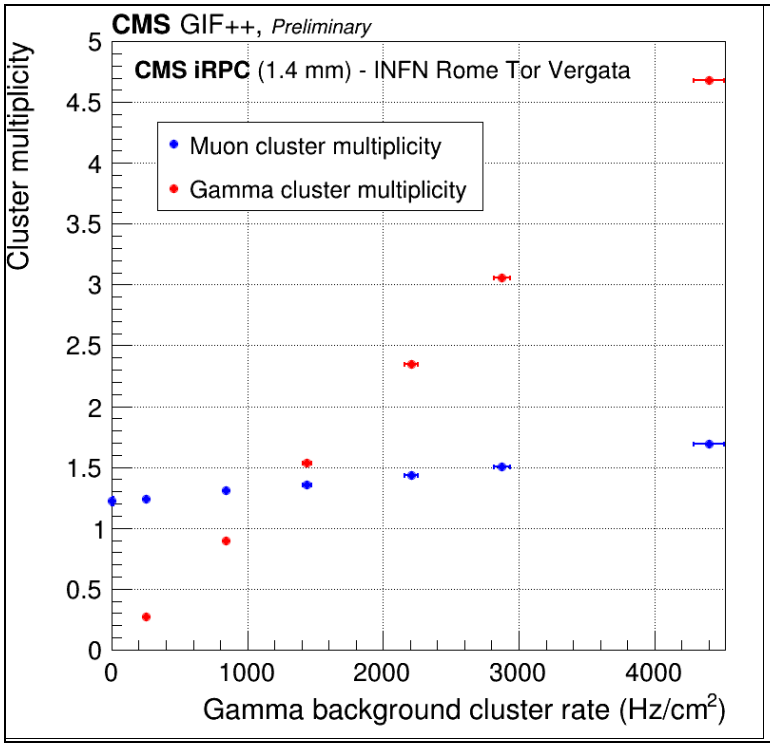

Shown the muon (blue) and gamma (red) cluster mult
function of the background gamma cluster rate (defin
gamma counting rate divided by the photon cluster si
evaluated at the working point voltage. The muon clu
multiplicity slightly increases as function of the cluste
1.2 (zero background rate) to 1.7 (high background ra
of 1.2 with zero background rate is explained by the c
of double muons in the spill and, to lesser extend by t
clusterization algorithm. pdf file C file Contact:
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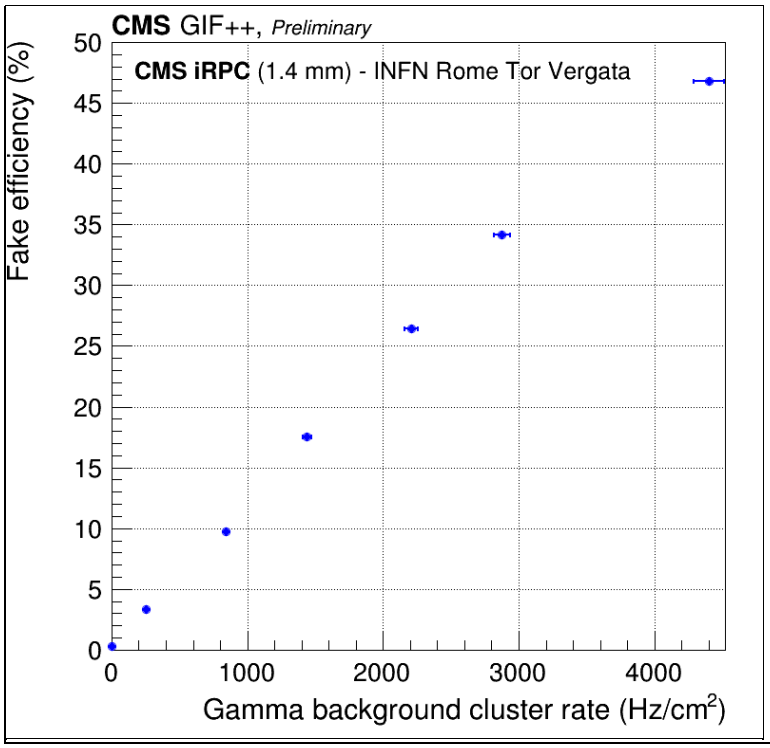
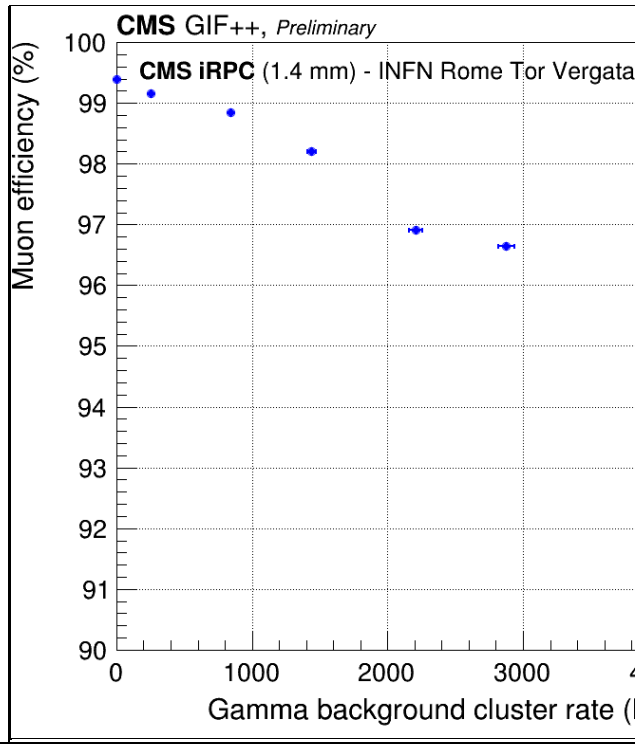
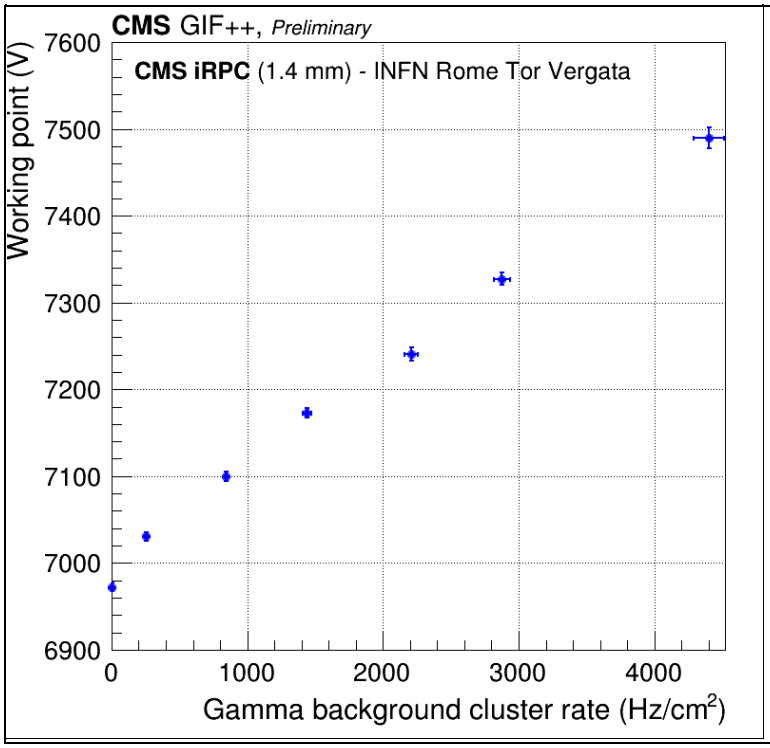




Shown the muon (right) and fake (left) efficiency as function of the background gamma cluster rate (defined as the gamma counting rate divided by the photon cluster size), evaluated at the working point voltage. The muon efficiency is corrected for the fake background gamma hits, explaining the efficiency decrease towards higher background gamma cluster rates. pdf file efficiency C file efficiency; pdf file fake efficiency C file fake efficiency Contact: cms-dpg-conveners-rpc@SPAMNOTcernNOSPAMPLEASE.ch



Shown the muon working point as function of the bac
gamma cluster rate (defined as the gamma counting r
by the photon cluster size), evaluated at the working p
voltage. The working point is defined by fitting the ef
curve (after subtracting the fake background gamma
contribution) with the following sigmoid formula:

$$E = \frac{E_{max}}{1 + e^{-\lambda (HV_{eff} - HV_{50\%})}}$$

, The working
voltage is then defined as: WP = ln(19)/ + HV(50%)
An increase of the working point vs. background gam
rate is expected as the detector becomes less efficient
detector occupancy. pdf file C file Contact:
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