RF based Measurement of ultra-low charges

Introduction

For cancer treatment, it is crucial to know with a good precision certain beam parameters such as its intensity and position. Presently, this is obtained by a direct interaction (Ionization Chambers) with the particle beam. This direct interaction spoils the quality of the beam. As a result,before the beam could be delivered to the patient for treatment, some optimizations are necessary.

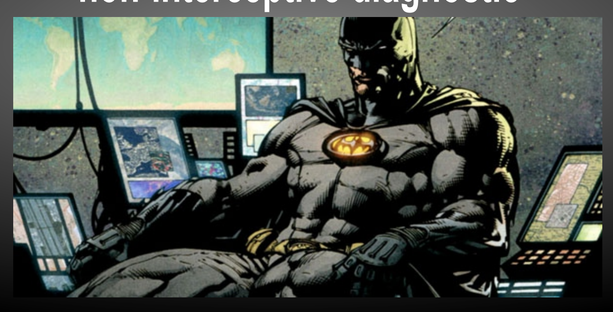
Objective

To develop non interceptive diagnostics i.e. beam current and beam position monitors for low beam intensities down to 1 nA.

starring

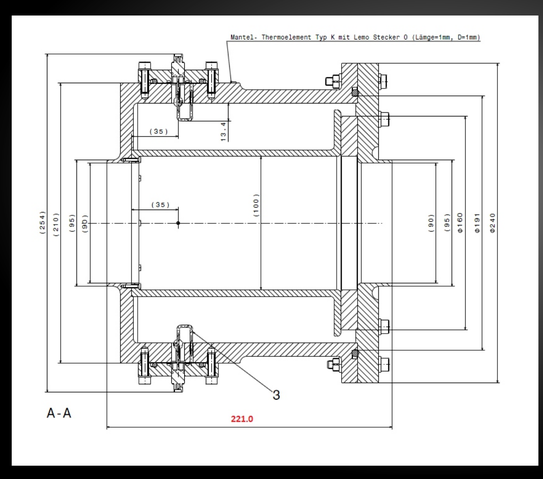
Flash as proton beam

BATMAN as our non-interceptive diagnostic



Zolomon as Cancer

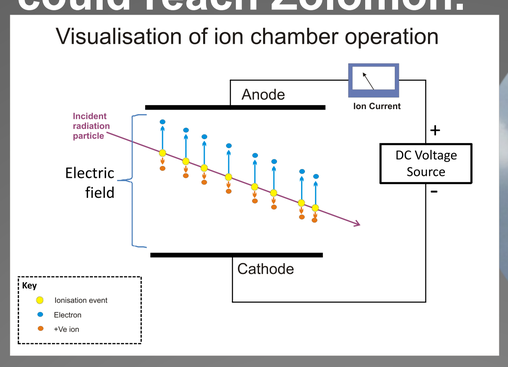
Our Proposal

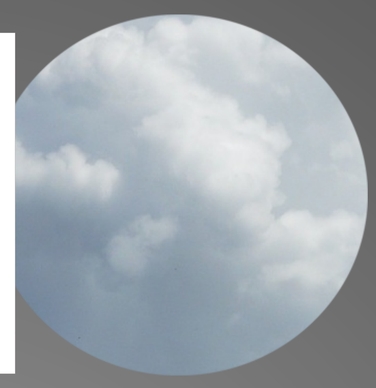


so the beam is no longer disturbed by the diagnostic. The challenge is to measure very small intensity

Flash is assigned the job of defeating Dr ZOLOMON

But, Flash has to go through a cloud of uncertainty before he could reach Zolomon.





Design Parameters (Approximate values)

Entrance Diameter:100mm
Overall length: 221mm
Inner Cylinder Dia: 100mm
Inner Cylinder Ht: 164mm
Dielectric width: 30mm
Dielectric Thickness: 12.5mm

Now Flash can focus on the fight with much ease and can save the world quite comfortably :) :) :)

FLASH having lost his quality, needs to optimize his energy levels in order to beam Dr Zolomon (Cancer)

However, with his focus lost a bit, Flash is not sure of his energy levels and struggles against Zolomon (Cancer)

Now with BATMANs help, Flash has optimized his energy levels and is super motivated for his destiny which is to defeat Zolomon and save the world.

The cloud is cleared by BATMAN (our non-interceptive beam diagnostic)

A bit of thinking.....

Characterization Criteria Expected Precisions:

For Beam Intensities:

+/- 1 nA

For Beam Position:

+/-2 mm

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