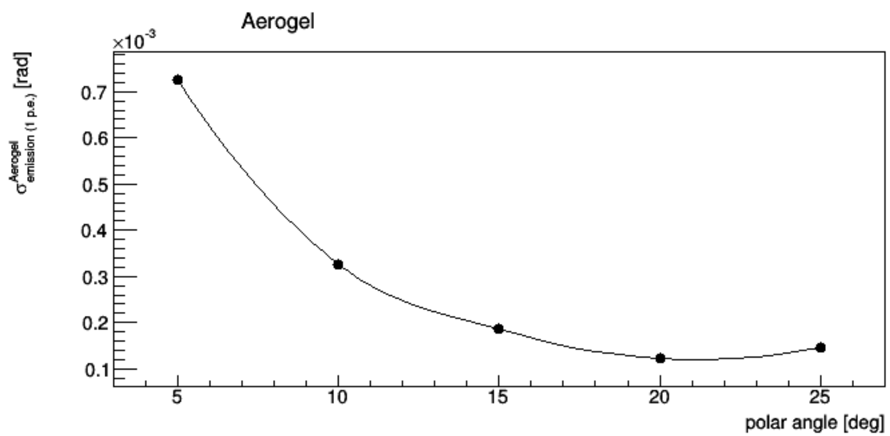
Dual-RICH update 3-14-2016
Alessio Del Dotto

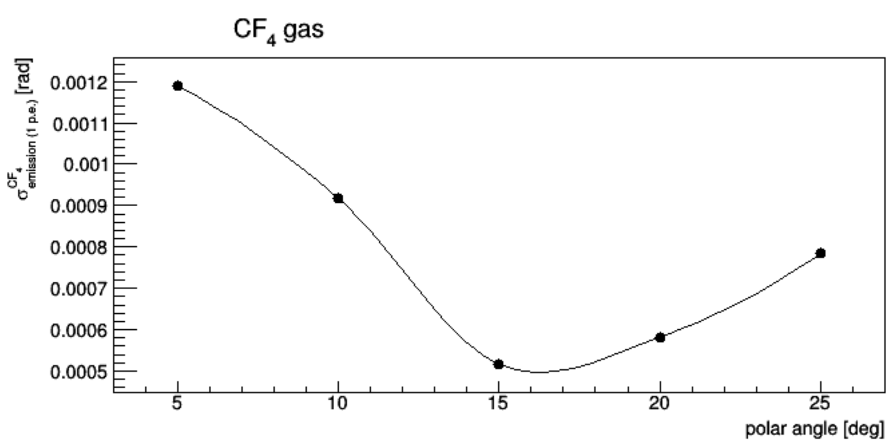
- Summary of performances
  - general R&D

All inside the gas tank

The “real” size of the gas tank shold be set according to the space at disposal

Three good configurations





Mirror radius 2.8 m
Mirror tilt angle 26.65°

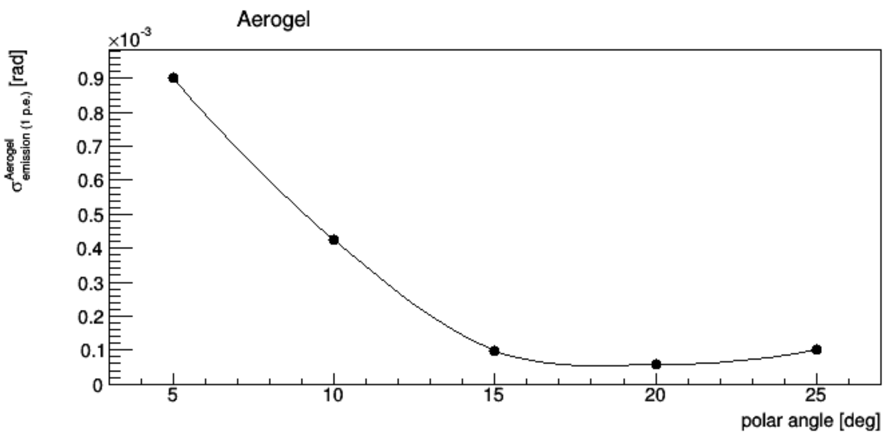
At 25° 1/2 of the Aerogel photons lost to contain the size of the detector plane

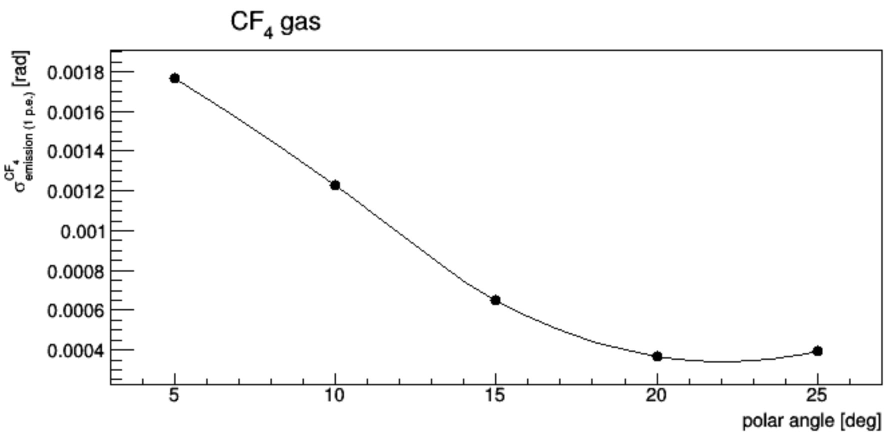
About 8500 cm^2

Detector plane: spherical shape

R = 1.55 m
Same center of the mirror

Three good configurations





Mirror radius 2.8 m
Mirror tilt angle 26.65°

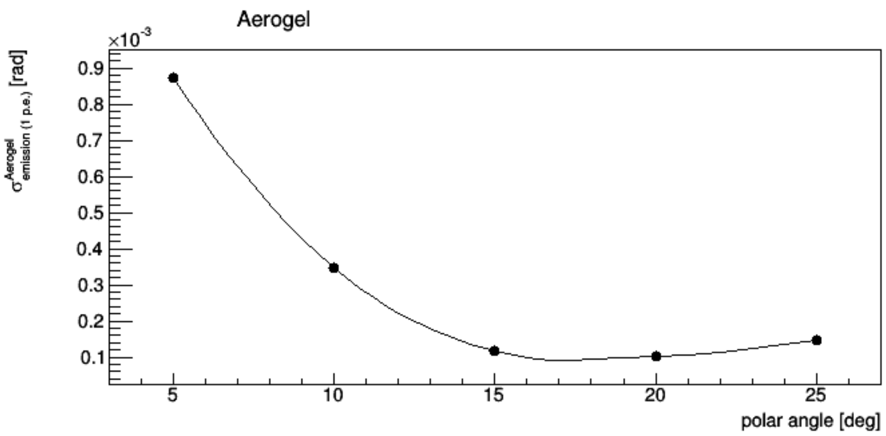
At 25° 1/2 of the Aerogel photons lost to contain the size of the detector plane

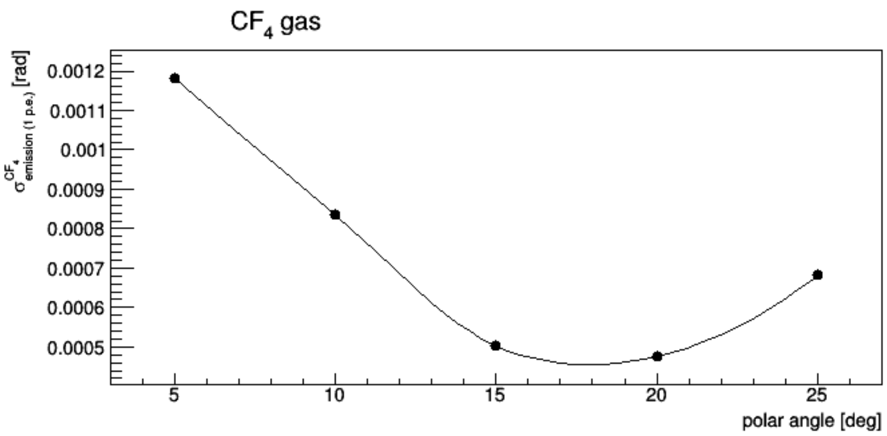
About 8500 cm^2

Detector plane: spherical shape

R = 1.50 m
Same center of the mirror

Three good configurations





Mirror radius 2.8 m
Mirror tilt angle 26.65°

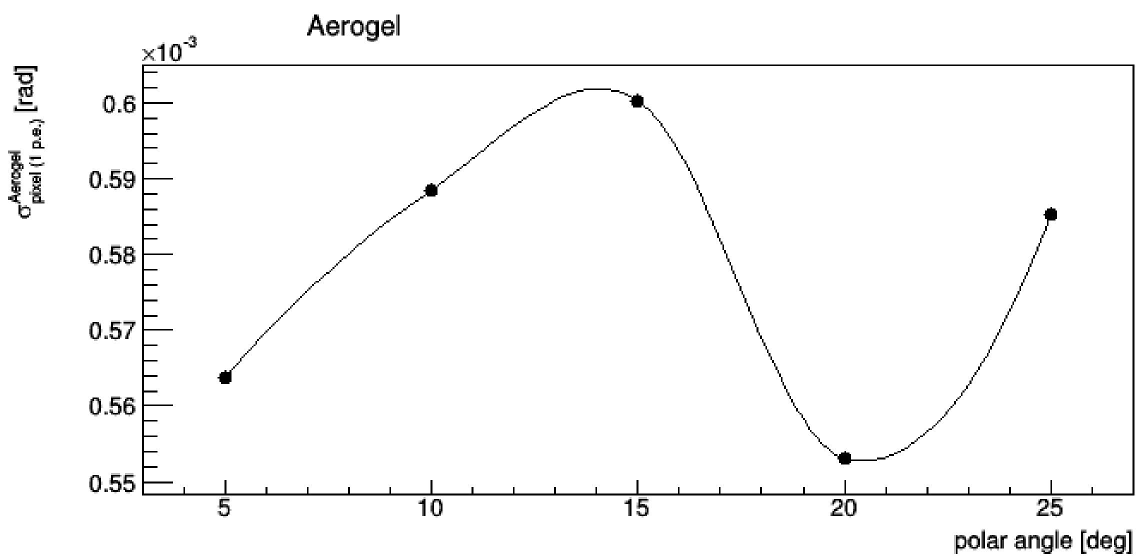
At 25° 1/2 of the Aerogel photons lost to contain the size of the detector plane

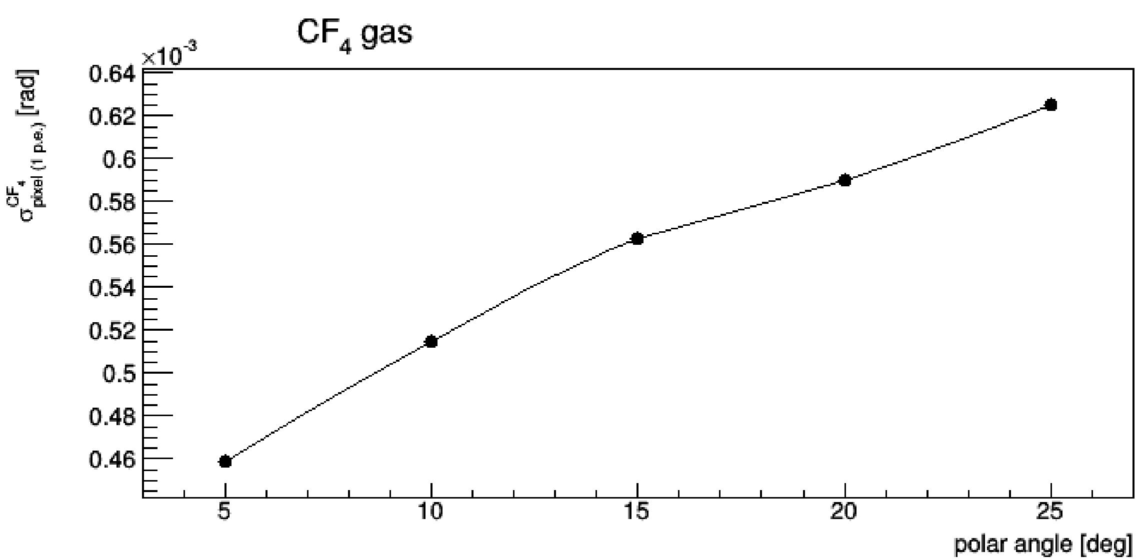
About 8500 cm^2

Detector plane: spherical shape

R = 1.50 m
Center shifted of 6 cm respect to the mirror center

Pixel size uncertanty





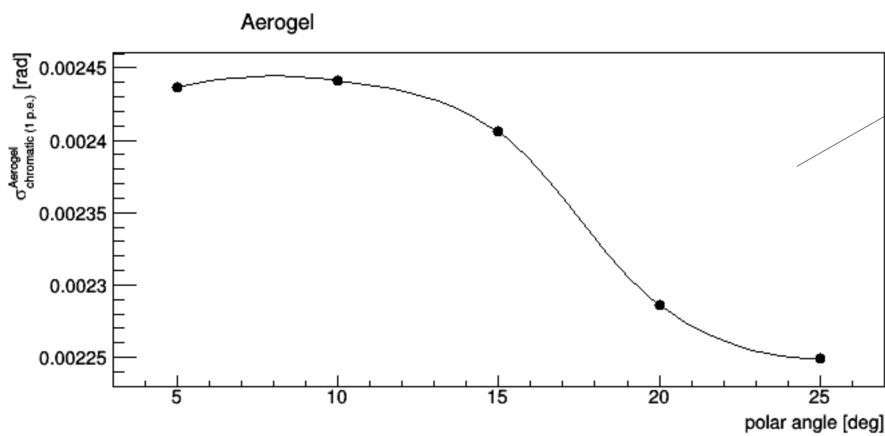
This is for squared
pixels of 3mm

In the case of spherical
Detector, perhaps different
Shapes can be better

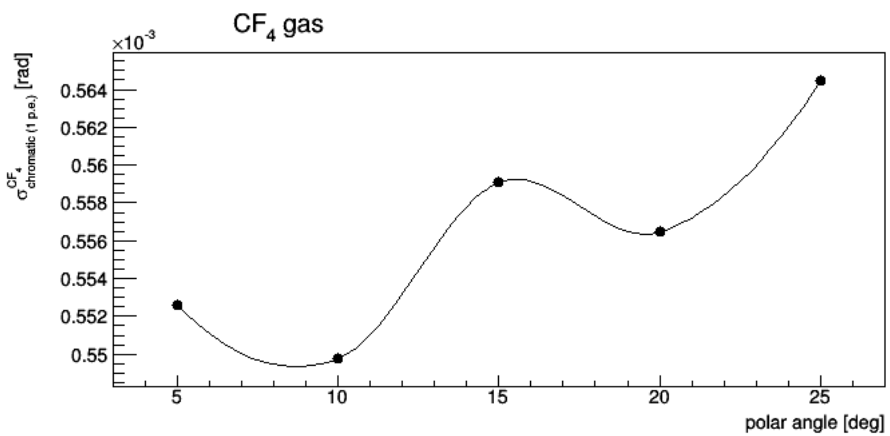
The behavior
and the fluctuations
Have to be studied in detail!

Chromatic uncertanty

Perhaps due to some refraction or edge effect?



The behavior
and the fluctuations
Have to be studied in detail!



Aerogel

$mat{"indexOfRefraction"} = "1.01963 1.01992 1.02029 1.02074 1.02128";

$mat{"photonEnergy"} = "2*eV 2.5*eV 3*eV 3.5*eV 4*eV"

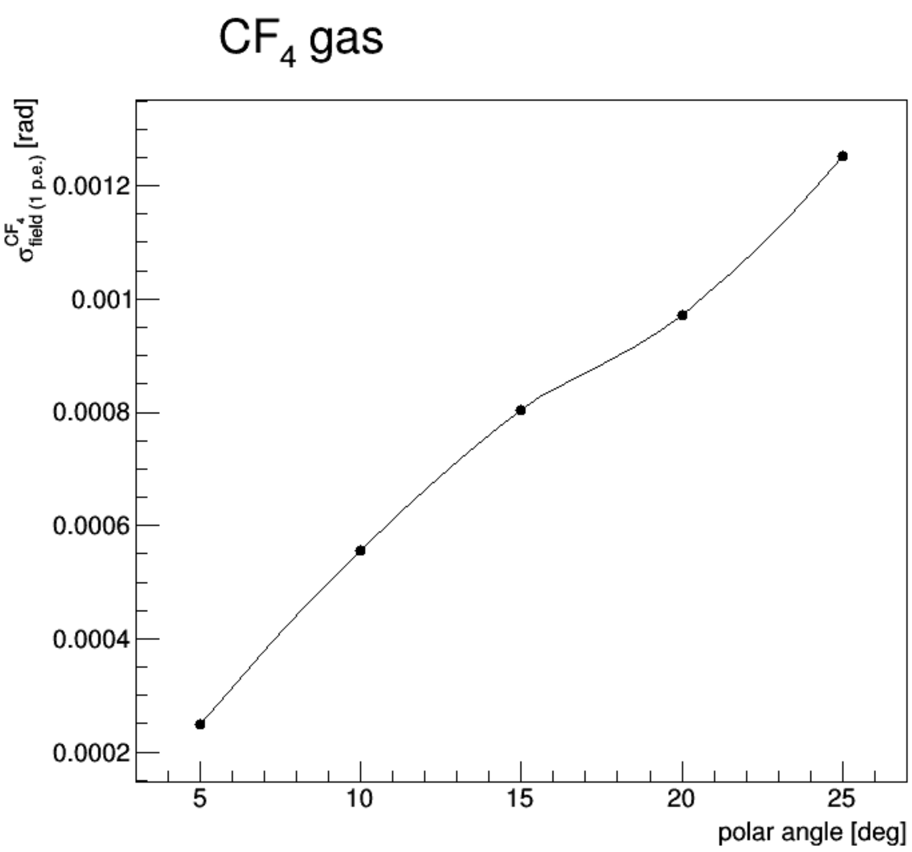
CF4

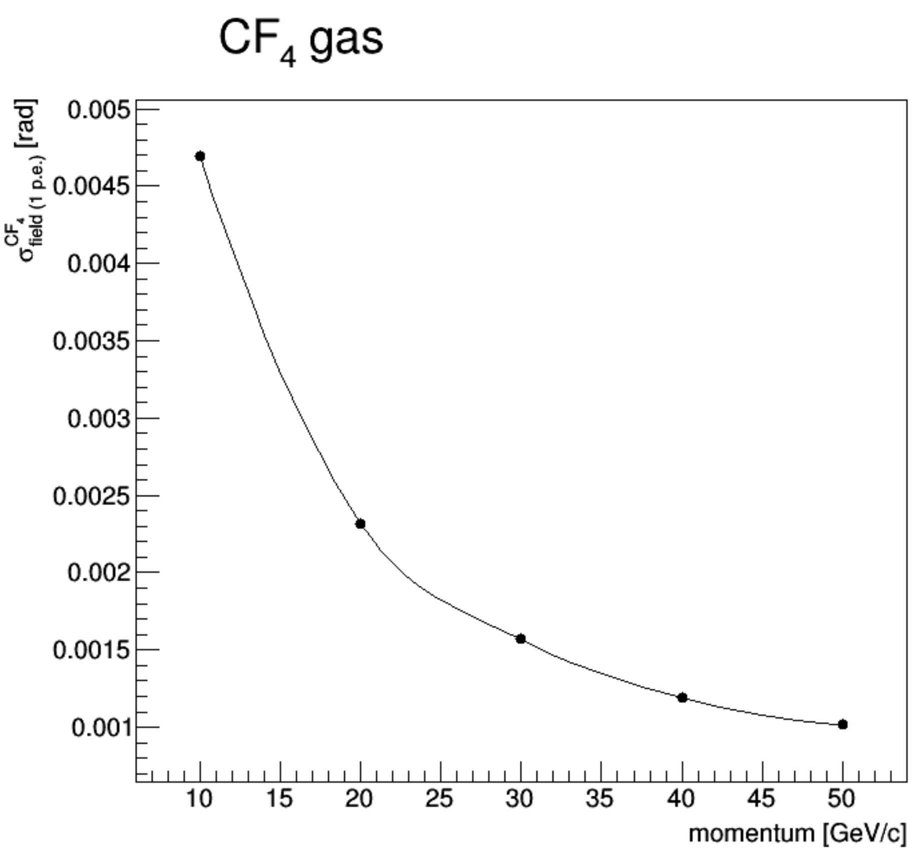
$mat{"photonEnergy"} = "2*eV 2.5*eV 3*eV 3.5*eV 4*eV 4.5*eV 5*eV 5.5*eV 6*eV 6.5*eV 7*eV";

$mat{"indexOfRefraction"} = "1.00048 1.00048 1.00049 1.00049 1.00050 1.00050 1.00051 1.00052 1.00052 1.00053 1.00054";

The recontruction method intrinsic error order 10^-6 rad

Field uncertanty





To do Next

- Understand the behavior of all the error contributions

- Find the number of sigma of separation as a function of the polar angle