




NEWSdm Internal Meeting

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Napoli, 29/11/19



Current activities

- Color studies
- Electron recoil simulation
- 40nm Crystal discrimination power
(waiting Kobayashi)

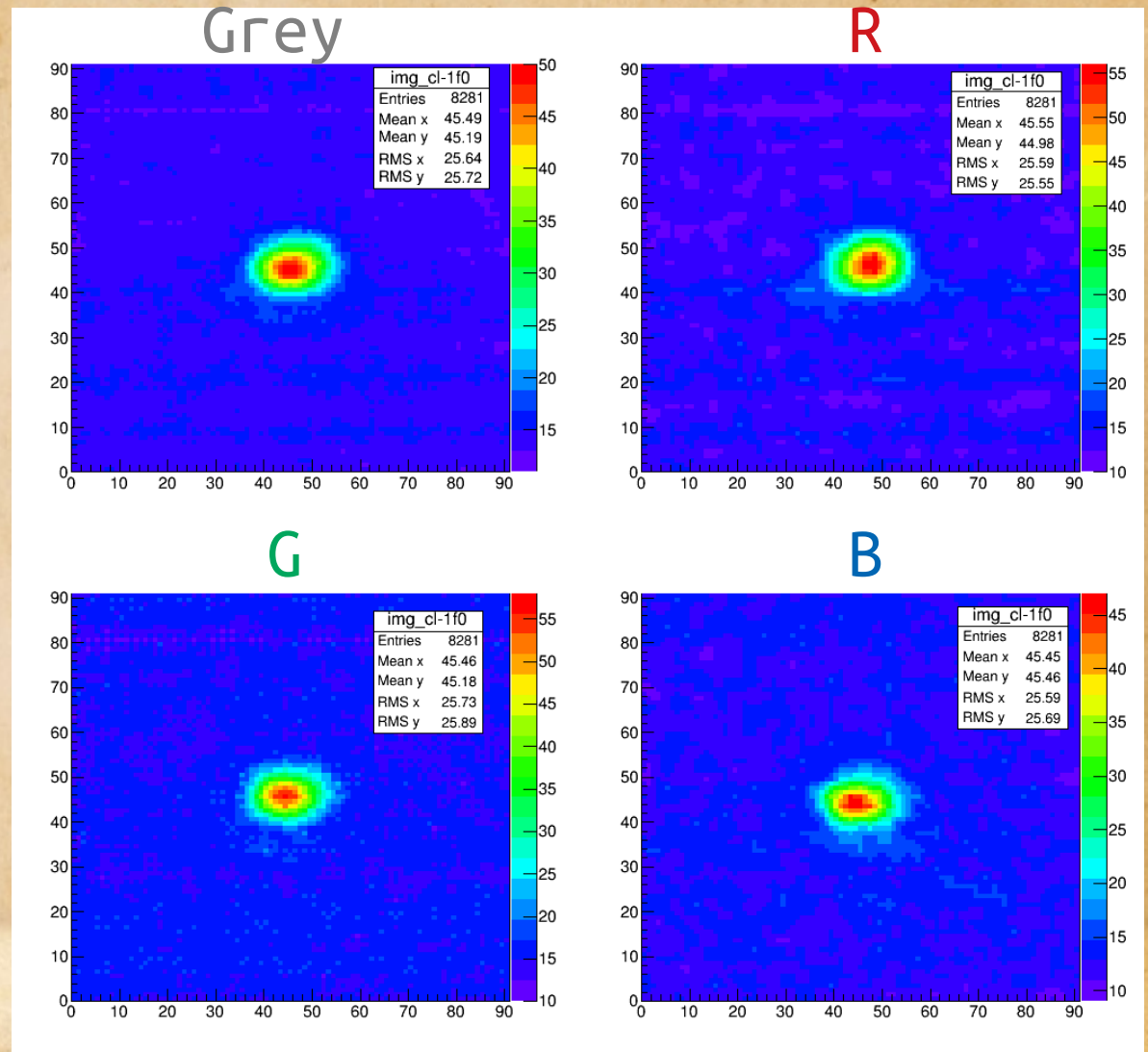
Colored grains

For each grain 4 images are available:

- Grey

$$(R + G + B) / 3$$

- Red
- Green
- Blue



Calibration summary

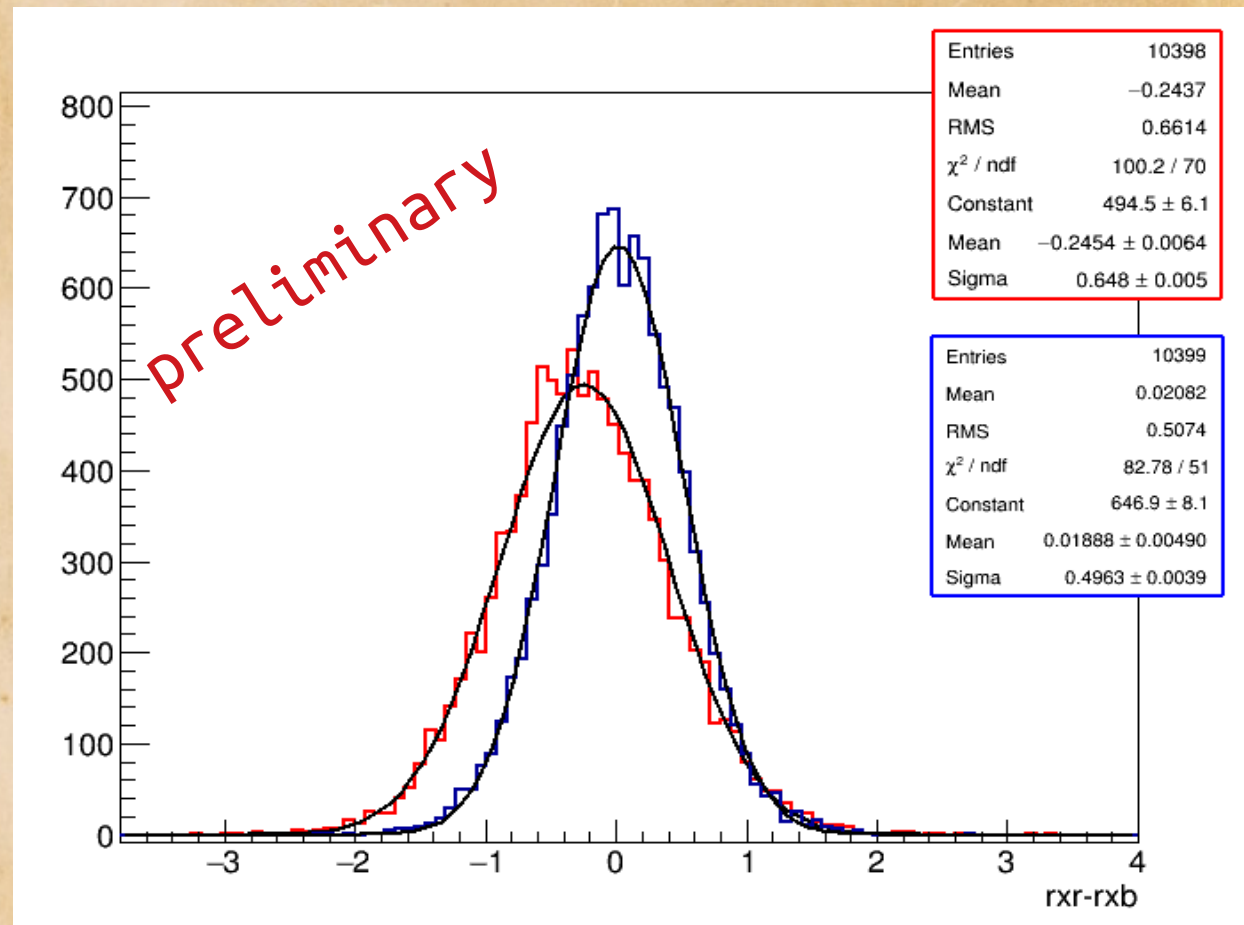
GAP	No Corr	Corr No Rot	Corr Rot
R - G	(-0.5, -0.5)	(0.003, 0.0001)	(0.03, -0.01)
G - B	(0.2, 1.5)	(-0.0009, -0.01)	(-0.03, -0.003)
R - B	(0.7, 1.9)	(-0.008, -0.04)	(0.02, -0.01)

A good alignment has been obtained among different colors for nanoparticles

Carbon 100keV ions

MaxPeak difference between Red xproj and Blue xproj shows a peak at 0.25

Calibration with NP is consistent with 0



R-B (x): -0.25

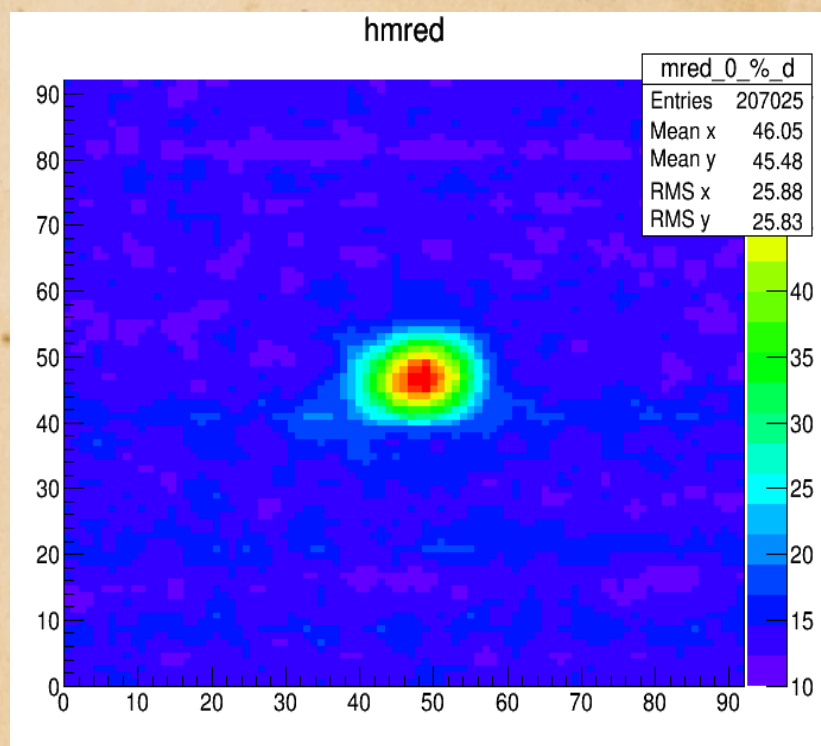
R-B (y): 0.02

Conclusions of last meeting

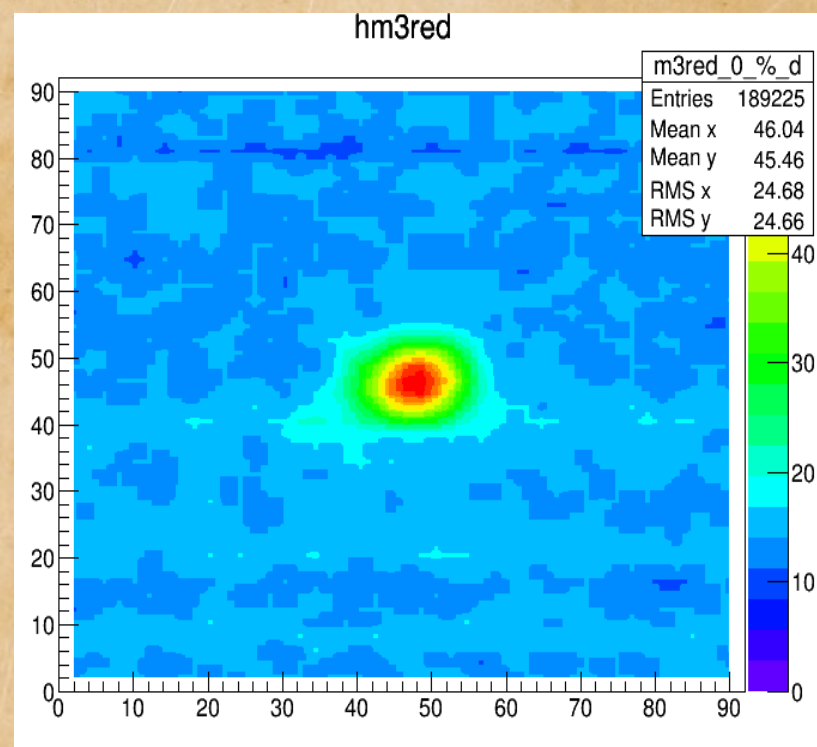
- Current analysis based on the localization of the colored grains has been performed
- Calibration with nanoparticles has been obtained
- Carbon 100keV could show a very small effect in terms of color gradient
- No correlation observed with plasmon variables
- A new approach based on the subtraction of the colored image from the grey image is currently under study but the calibration with nanoparticles has not yet been reached

New strategy

RED



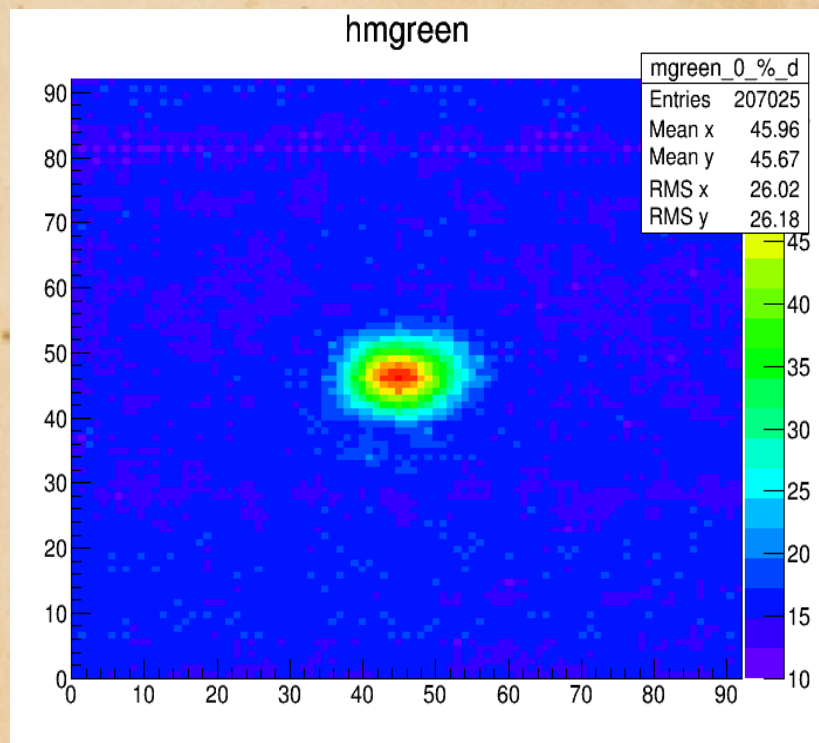
91 bins



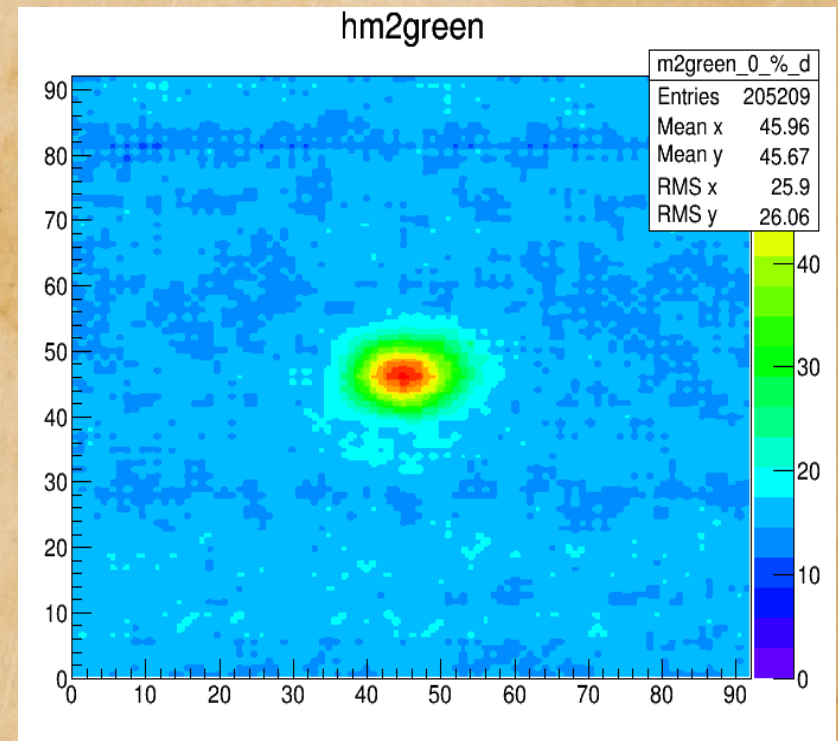
455 bins

New strategy

GREEN



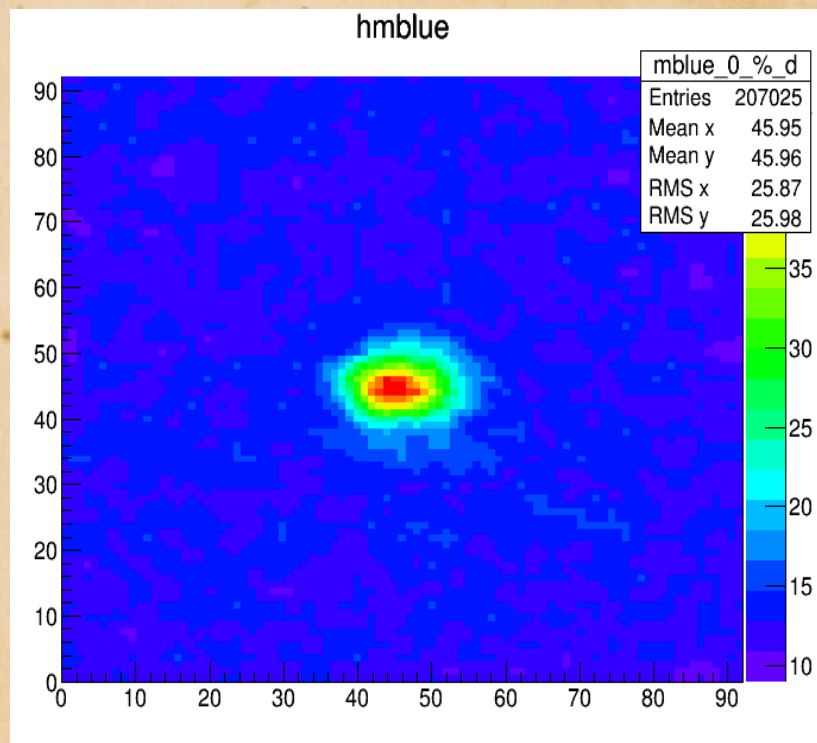
91 bins



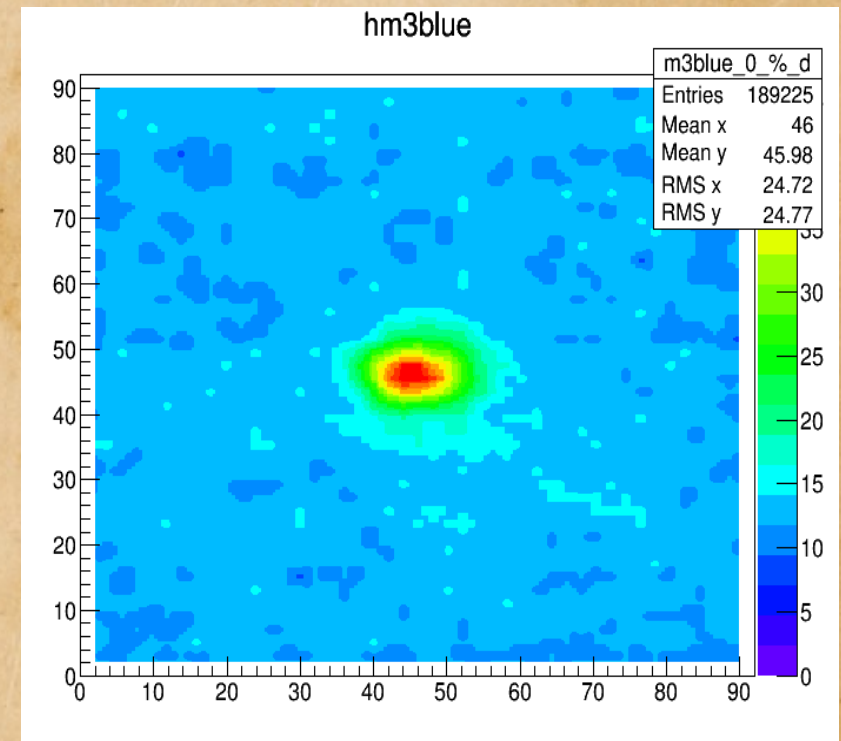
455 bins

New strategy

BLUE



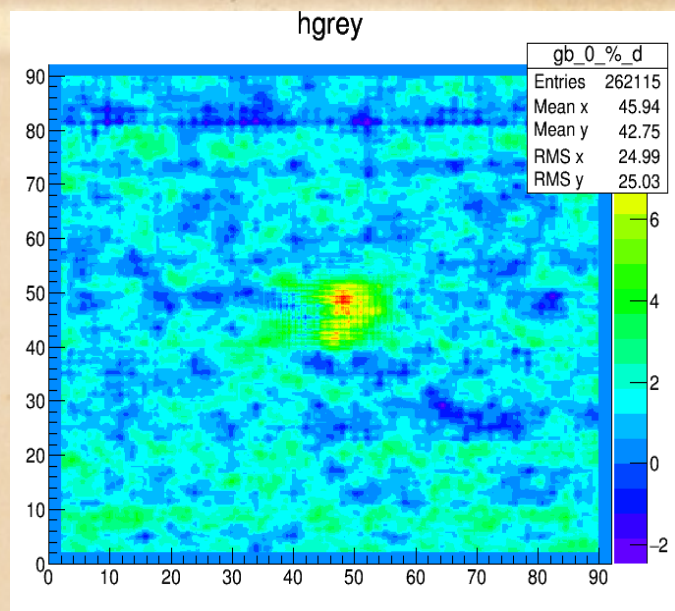
91 bins



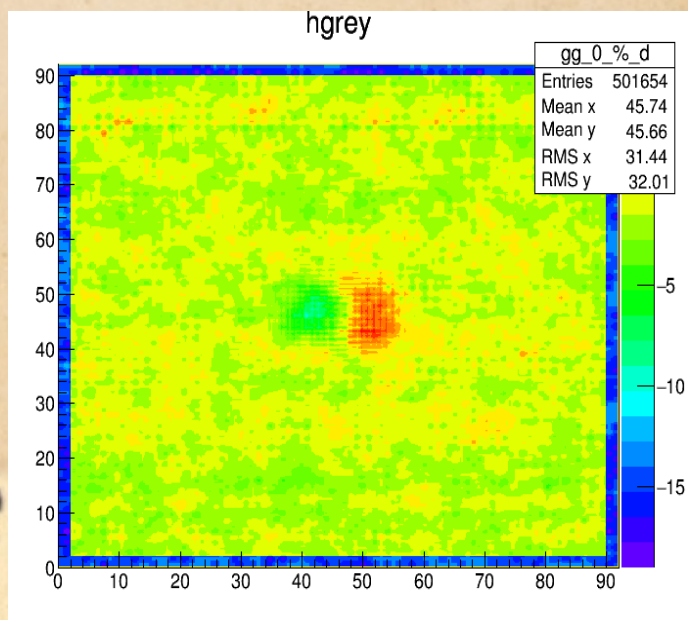
455 bins

Gradient study

Blue

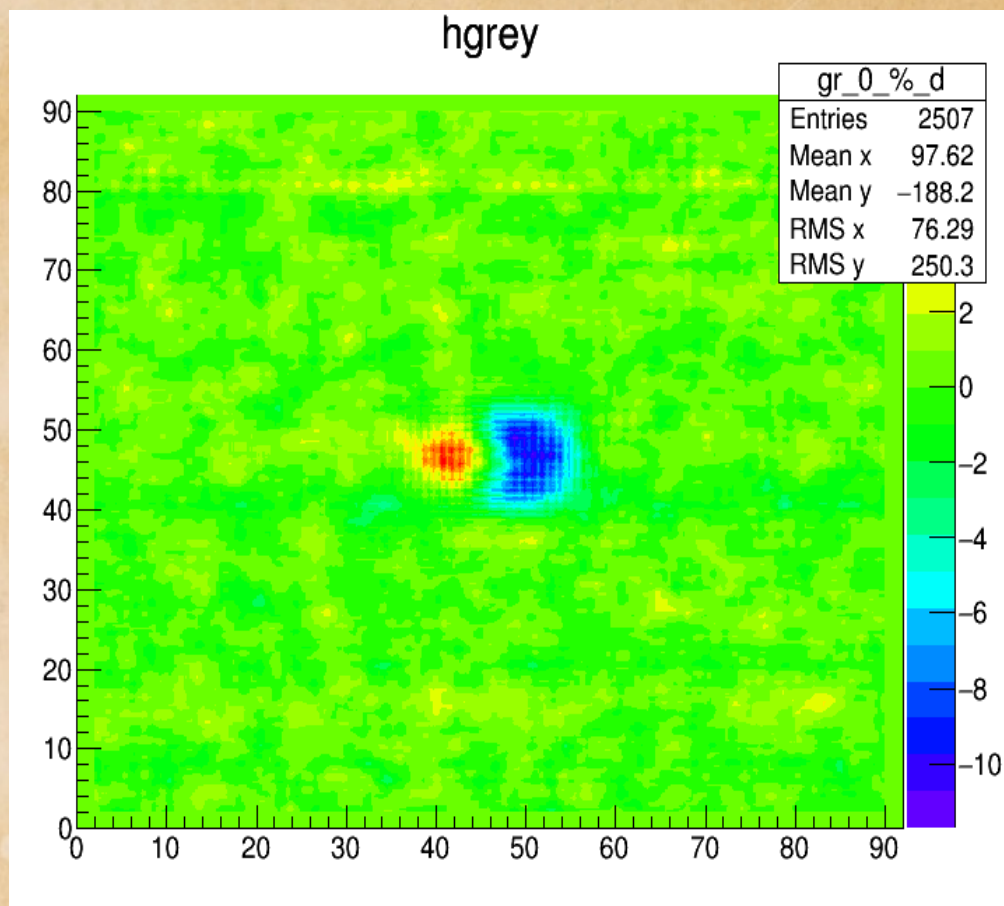


Green



Red

hgrey

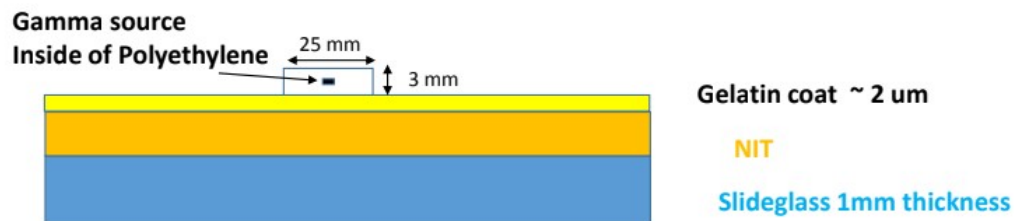


Colored histograms are subtracted with the grey one

Electron simulation

Gamma ray source and setup

^{241}Am Gamma
Activity = 2.6 MBq



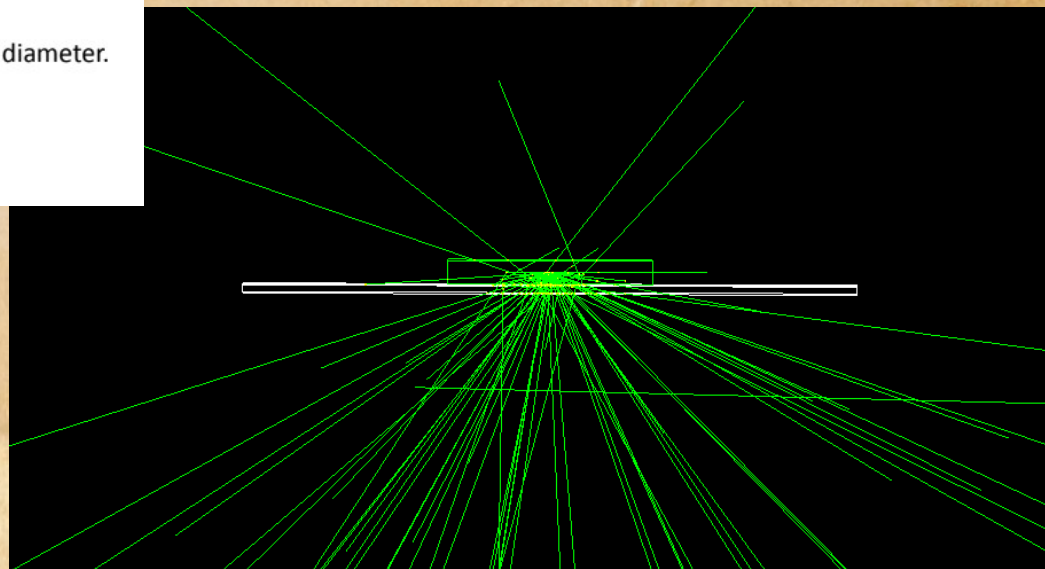
The size of source is unclear. The thickness of polyethylene coat is 3 mm and 25mm diameter. Source was set on the surface of sample directly for **30 seconds**.

GEANT4 based simulation

Aim: prediction of the energy threshold to form fog grains

39×10^6 gamma
are been simulated

Analysis ongoing





Thank you for the attention

