

Cinque slides sulla geometria / ottica dei CEDARs

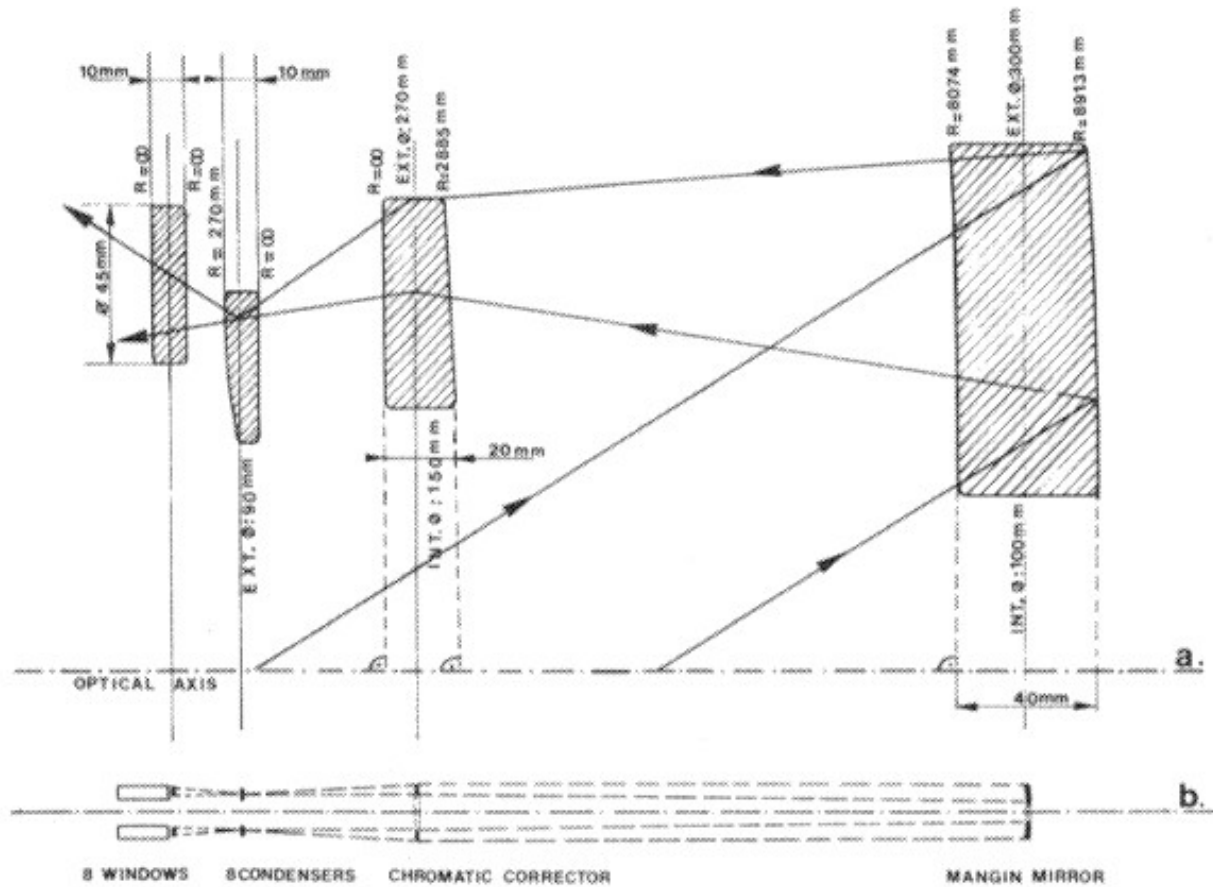


Fig. 11 a) CEDAR optical elements enlarged to better show their real shape and located in a distorted scale drawing of the optical trajectories. b) CEDAR optics on a real scale.

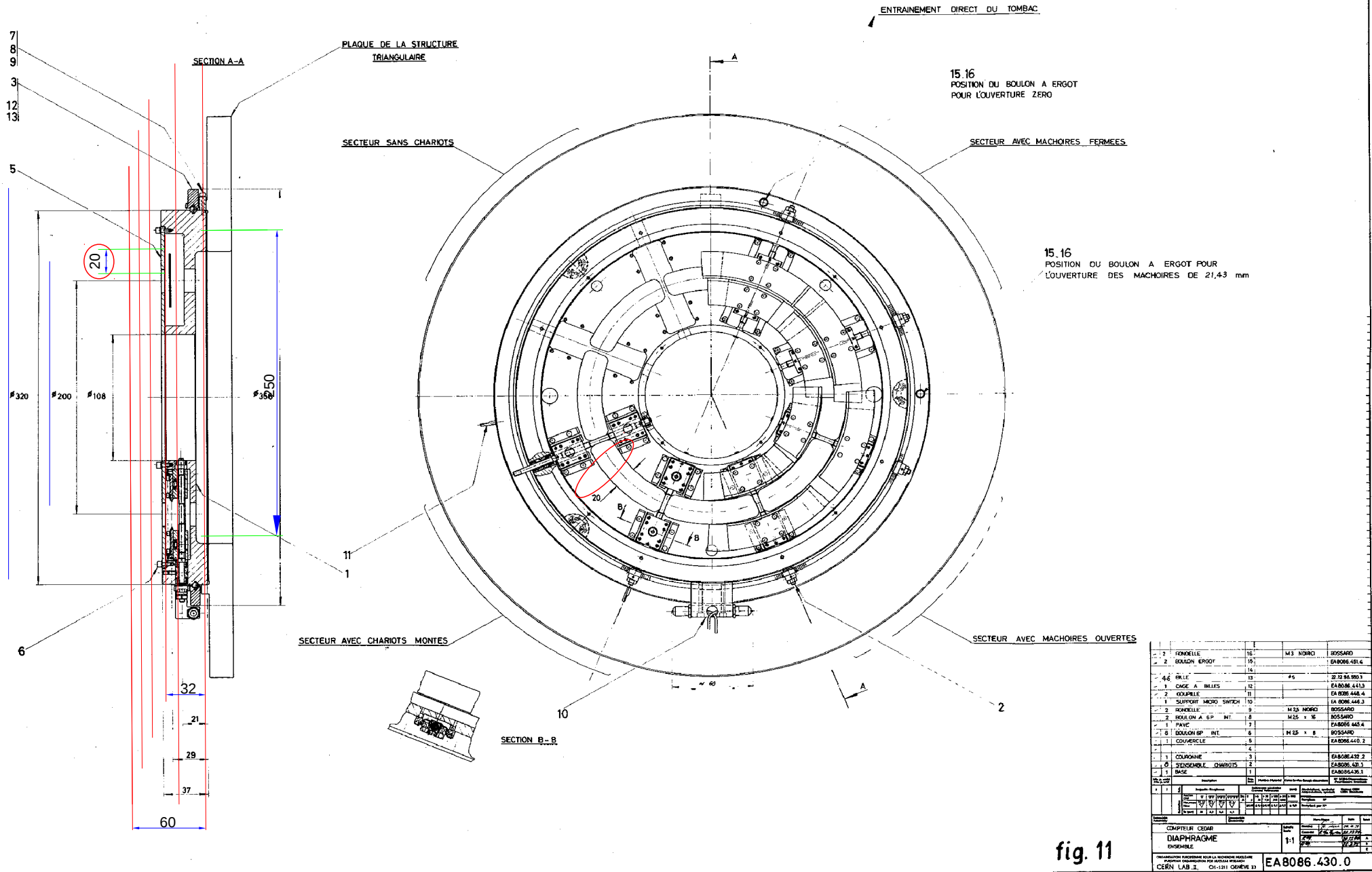
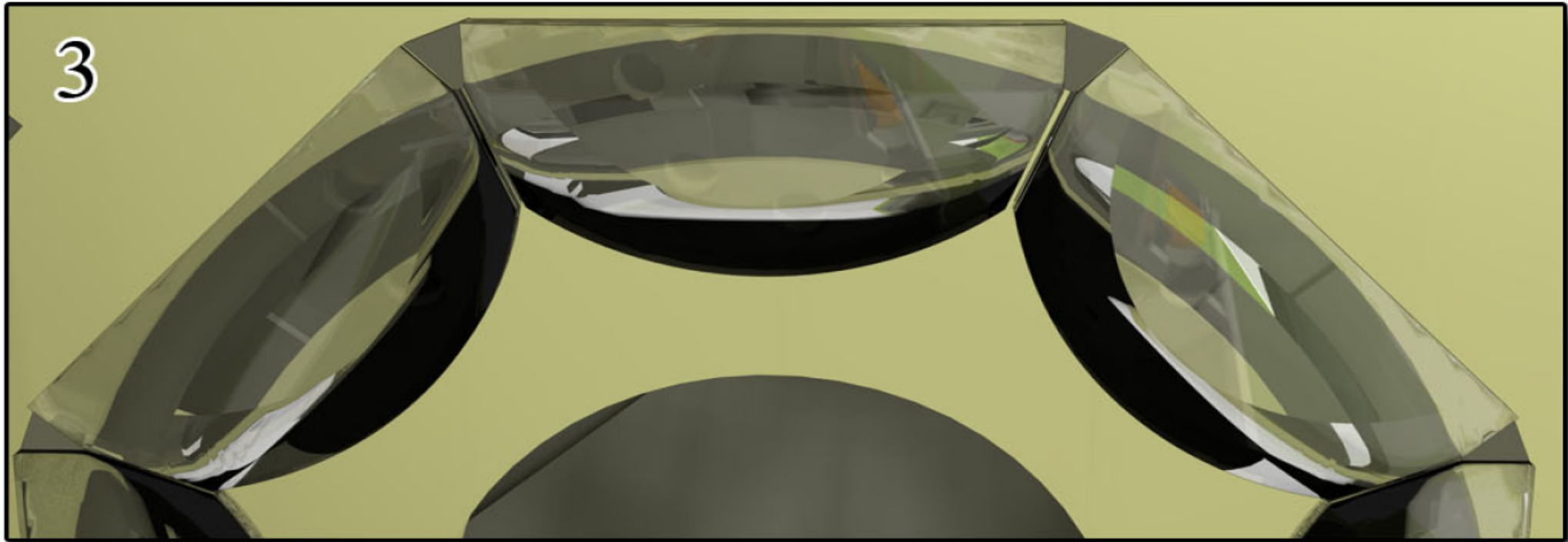


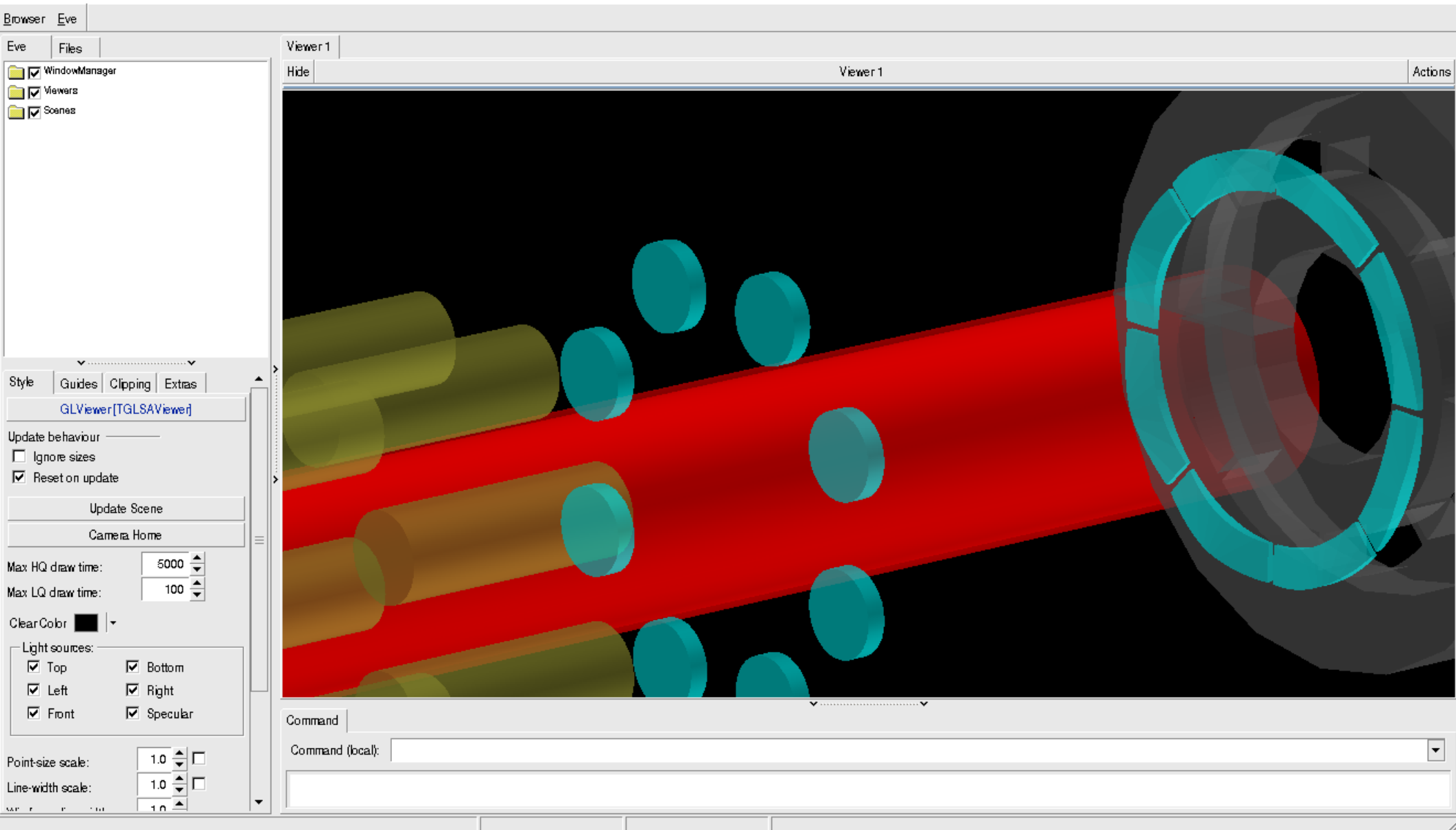
fig. 11



CEDAR_PICT_2014_02_27



Condenser lenses, optical windows and PMTs as in the MC



La prox mostra le condizioni del Pscan run (dati non da TURTLE) :

- Pscan da 10.8 bar a 10.1 bar in 70 steps
- Light Diaphragm = 0.5mm
- 10,000 pi + 10,000 K + 10,000 pbar per ciascun step
- fascio perfettamente in asse con CEDAR con RMS 0.010mm sia in X sia in Y
- divergenza fascio con media nulla ed RMS di 0.001 mrad sia in X sia in Y (cioè fascio parallelo)
- impulso fascio : 190 GeV/c con RMS di 1 GeV/c

TURTLE input file = /home/flavio/private/turtlin/beam2014_F2

Raise Canvases

- | | | | |
|--|---|--|--|
| <input type="checkbox"/> CEDAR geomery | <input type="checkbox"/> Pion pag.1 @ CEDAR entrance | <input type="checkbox"/> Pion pag.2 @ CEDAR entrance | <input type="checkbox"/> Kaon pag.1 @ CEDAR entrance |
| <input type="checkbox"/> Kaon pag.2 @ CEDAR entrance | <input type="checkbox"/> Pbar pag.1 @ CEDAR entrance | <input type="checkbox"/> Pbar pag.2 @ CEDAR entrance | <input type="checkbox"/> EMI-9820QB Q.E. |
| <input type="checkbox"/> PMT Effic. _HV | <input type="checkbox"/> Optical characteristics of the media | <input type="checkbox"/> Mean No. Gener.Photons - PRscan | <input type="checkbox"/> Photon wavelengths - PRscan |
| <input type="checkbox"/> Photons emerging from Mirror - PRscan | <input type="checkbox"/> X-Y #gamma at LD entrance - PRscan | <input type="checkbox"/> R-Phi #gamma at LD entrance - PRscan | <input checked="" type="checkbox"/> Photons at PMT entrance - PRscan |
| <input type="checkbox"/> <Photons/track/PMT> - PRscan | <input type="checkbox"/> <NPE/track/PMT> - PRscan | <input type="checkbox"/> Fired PMT / track - PRscan | <input type="checkbox"/> Majorities/track - PRscan |
| <input type="checkbox"/> Majority/track - PRscan | <input type="checkbox"/> <NPE/track/PMT> from Majorities - PRscan | <input type="checkbox"/> Efficiencies_Contamination - PRscan | <input type="checkbox"/> Effic._Contam./track - PRscan |
| <input type="checkbox"/> Mean No. Gener.Photons - LDscan | <input type="checkbox"/> Photon wavelengths - LDscan | <input type="checkbox"/> Photons emerging from Mirror - LDscan | <input type="checkbox"/> X-Y #gamma at LD entrance - LDscan |
| <input type="checkbox"/> R-Phi #gamma at LD entrance - LDscan | <input type="checkbox"/> Photons at PMT entrance - LDscan | <input type="checkbox"/> <Photons/track/PMT> - LDscan | <input type="checkbox"/> <NPE/track/PMT> - LDscan |
| <input type="checkbox"/> Fired PMT / track - LDscan | <input type="checkbox"/> Majorities/track - LDscan | <input type="checkbox"/> Majority/track - LDscan | <input type="checkbox"/> <NPE/track/PMT> from Majorities - LDscan |
| <input type="checkbox"/> Efficiencies_Contamination - LDscan | <input type="checkbox"/> Effic._Contam./track - LDscan | | |

Choice of file with Pressure-scan data

 Reference file with pressure-scan data (Maj. 6-, 7-, 8-fold)

Pressure Scan Conditions

<input type="text" value="10.100"/>	Pmin in CEDAR [bar] (Def.: 10.100)	<input type="text" value="10.800"/>	Pmax in CEDAR [bar] (Def.: 10.800)	<input type="text" value="70"/>	# pressure steps (Def.: 70.0)
<input type="text" value="22.0"/>	T in CEDAR [C] (Def.: 22.0)	<input type="text" value="0.500"/>	LD in CEDAR [mm] (Def.: 0.50)	<input type="text" value="10"/>	No. prticles / type [10^3] (Def.: 10)
<input type="text" value="240"/>	LambdaMin on PMT [nm] (Def.: 240)	<input type="text" value="630"/>	LambaMax on PMT [nm] (Def.: 630)	<input type="text" value="1"/>	wavelength step [nm] (Def.: 1)

 Mirror Reflectivity
 Suprasil-1 Transmittance
 Cutoff Filter Transmittance

<input type="text" value="0.00"/>	Beam <X> [mm] (Def.: 0.00)	<input type="text" value="0.00"/>	Beam <Y> [mm] (Def.: 0.00)	<input type="checkbox"/> Get Part. Pos. from inp. files
<input type="text" value="0.000"/>	Beam <DivX> [mrad] (Def.: 0.000)	<input type="text" value="0.000"/>	Beam <DivY> [mrad] (Def.: 0.000)	
<input type="text" value="0.01"/>	Beam RMS(X) [mm] (Def.: 0.01)	<input type="text" value="0.01"/>	Beam RMS(Y) [mm] (Def.: 0.01)	<input type="checkbox"/> Get Part. Div. from inp. files
<input type="text" value="0.001"/>	Beam RMS(DivX) [mrad] (Def.: 0.001)	<input type="text" value="0.001"/>	Beam RMS(DivY) [mrad] (Def.: 0.001)	
<input type="text" value="190.00"/>	Beam Mom. Mean [GeV/c] (Def.: -190.00)	<input type="text" value="1.00"/>	Beam Mom. RMS [GeV/c] (Def.: 1.00)	<input type="checkbox"/> Get Part. Mom. from inp. files

 Multiple Scattering
 Fix lambda to 300nm (MSC checks)

 Pile-up
 Beam Intesity [GHz] (Def.: 0.00)
 L.E. discriminator width [ns] (Def.: 20.00)

 Majorities to be displayed :
 1-fold
 2-fold
 3-fold
 4-fold
 5-fold
 6-fold
 7-fold
 8-fold

Light Diaphragm Scan Conditions

P values [bar] for LD scan	<input type="text" value="10.239"/> pion (Def.: 10.239)	<input type="text" value="10.303"/> kaon (Def.: 10.303)	<input type="text" value="10.611"/> pbar (Def.: 10.611)
Particle for LD scan	<input type="text" value="Kaon"/>	LD min [mm] (Def.: 0.050)	<input type="text" value="0.050"/>
		LD max [mm] (Def.: 6.000)	<input type="text" value="6.000"/>
		# LD steps (Def.: 120.000)	<input type="text" value="120"/>

Tools

- | | | | |
|--|--|---|--|
| <input type="checkbox"/> Refresh all TCanvas | <input type="checkbox"/> Toggle logY option for hists of X/Y coord.s | <input checked="" type="checkbox"/> Start new pressure scan | <input type="checkbox"/> Start new LD scan |
| <input type="checkbox"/> Draw Geomtry without tracks | <input type="checkbox"/> Draw Tracks on top of Geomtry | <input type="checkbox"/> Write Hists and TTree to ROOT file | <input type="checkbox"/> Write TCanvases to a PDF file |

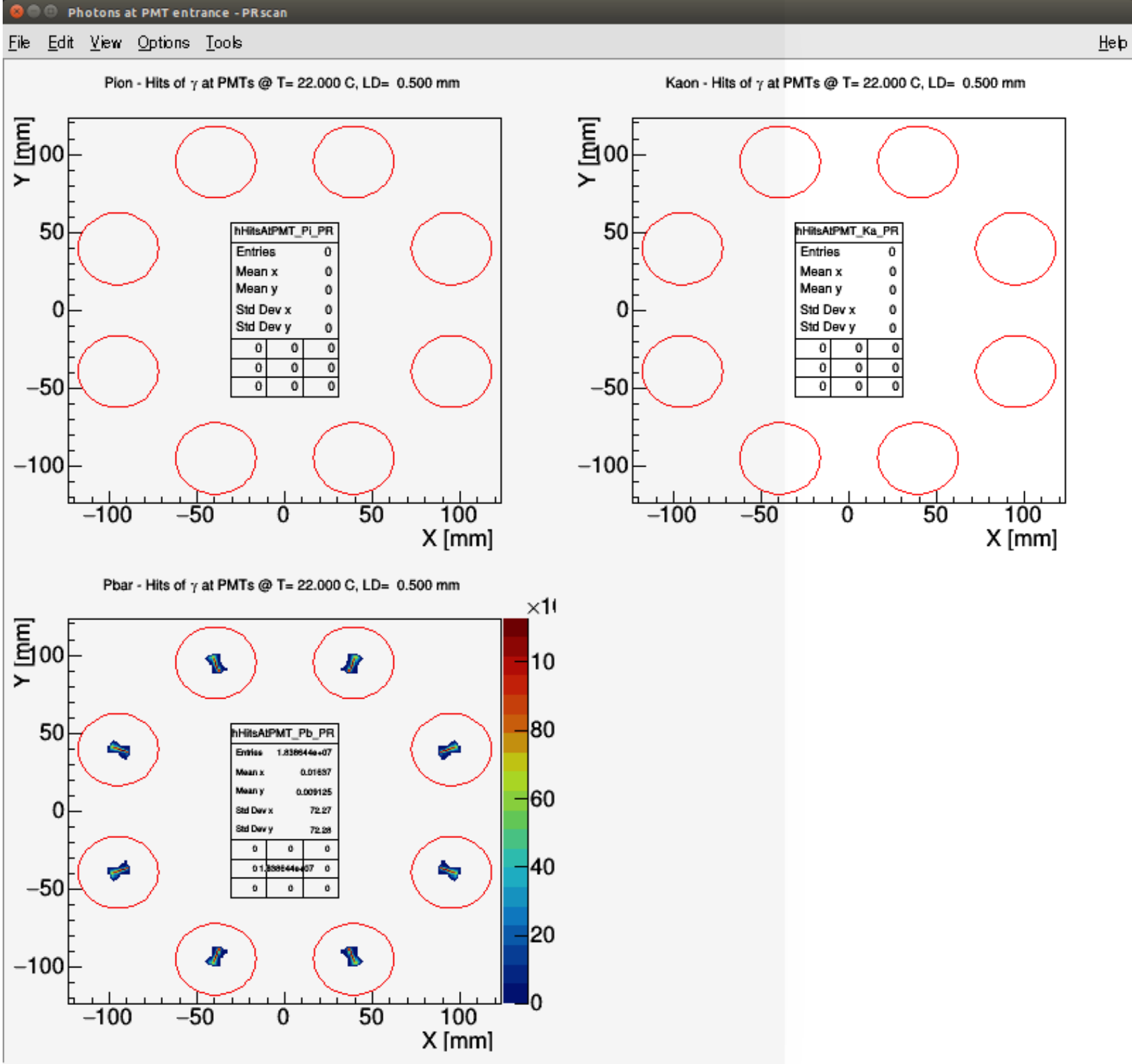
Al P step di

CEDAR_sim::Run_Scan() - PRscan step 42 (StepSize = -0.010 [bar])

- P= 10.375 [bar], T= 295.150 [K],

- LD= 0.500 - 10000 Pbars

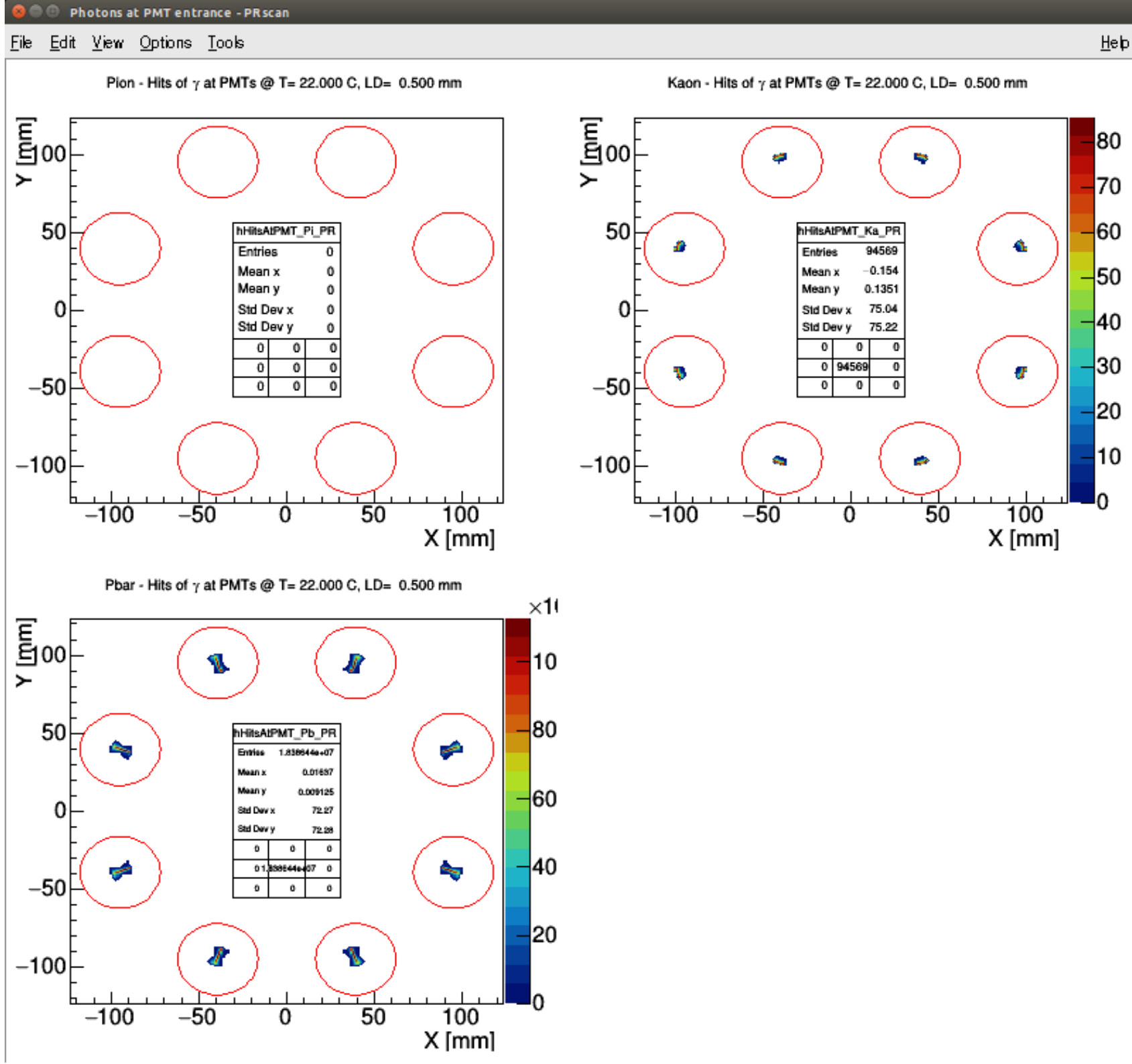
Gli hits sui PM sono distribuiti come in questa figura



Al P step di

CEDAR_sim::Run_Scan() - PRscan step 44 (StepSize = -0.010 [bar])
P= 10.355 [bar], T= 295.150 [K],
LD= 0.500 - 10000 Pions

Gli hits sui PM sono distribuiti come in questa figura (compaiono i K)



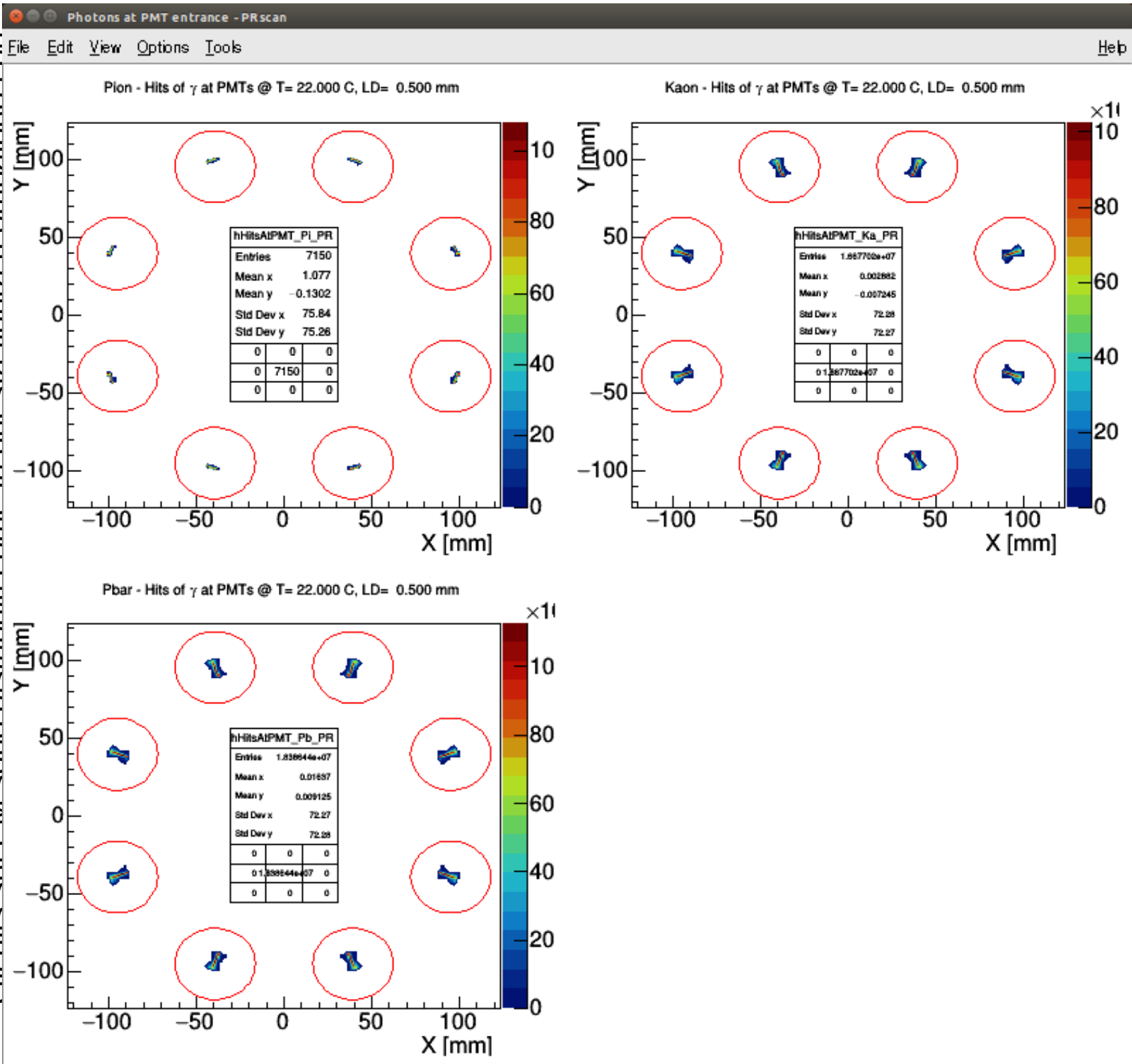
Al P step di

CEDAR_sim::Run_Scan() - PRscan step 53 (StepSize = -0.010 [bar])

- P = 10.265 [bar], T = 295.150 [K],

LD = 0.500 - 10000 Pions

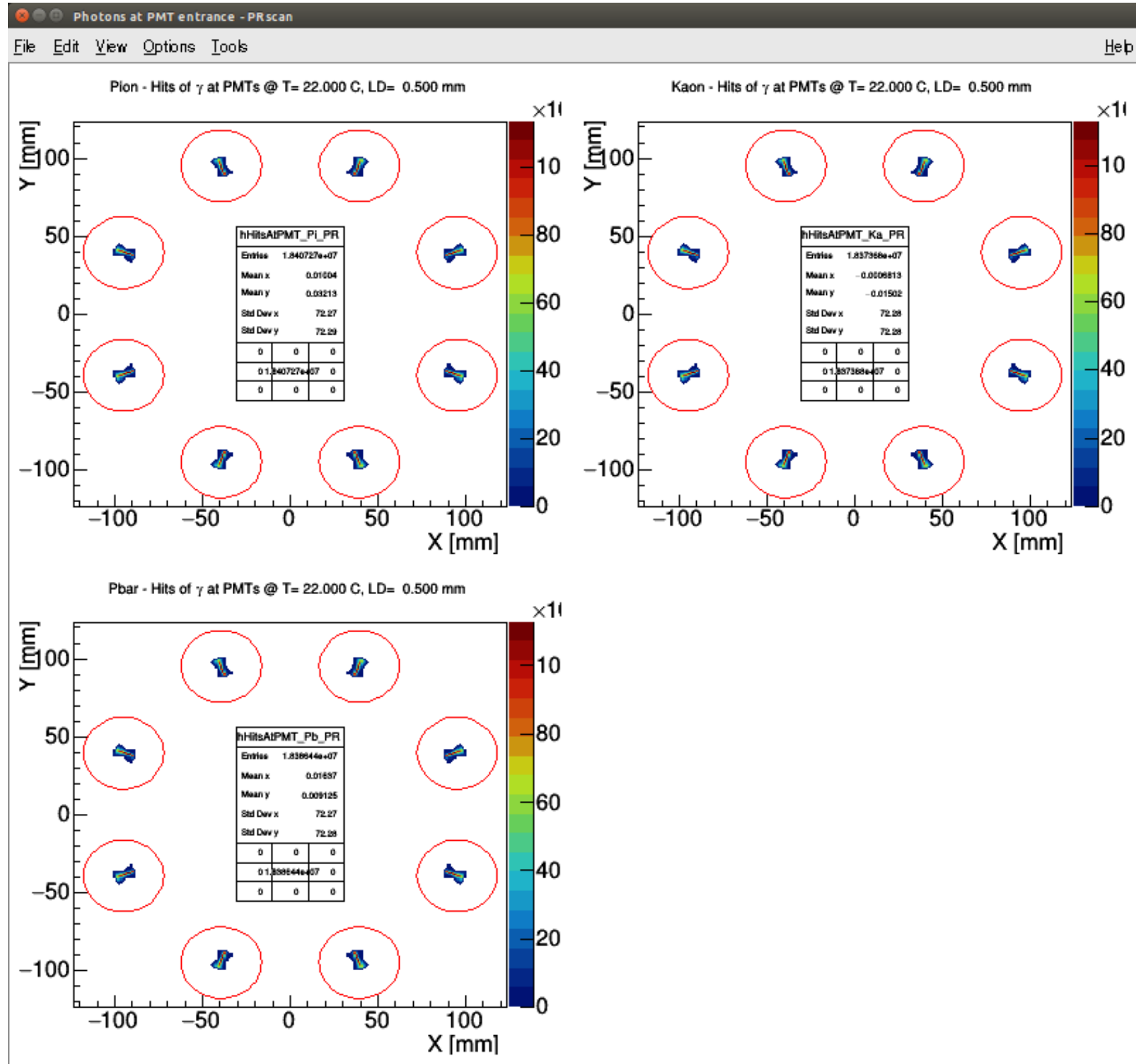
Gli hits sui PM sono distribuiti come in questa figura (compagno i ni)



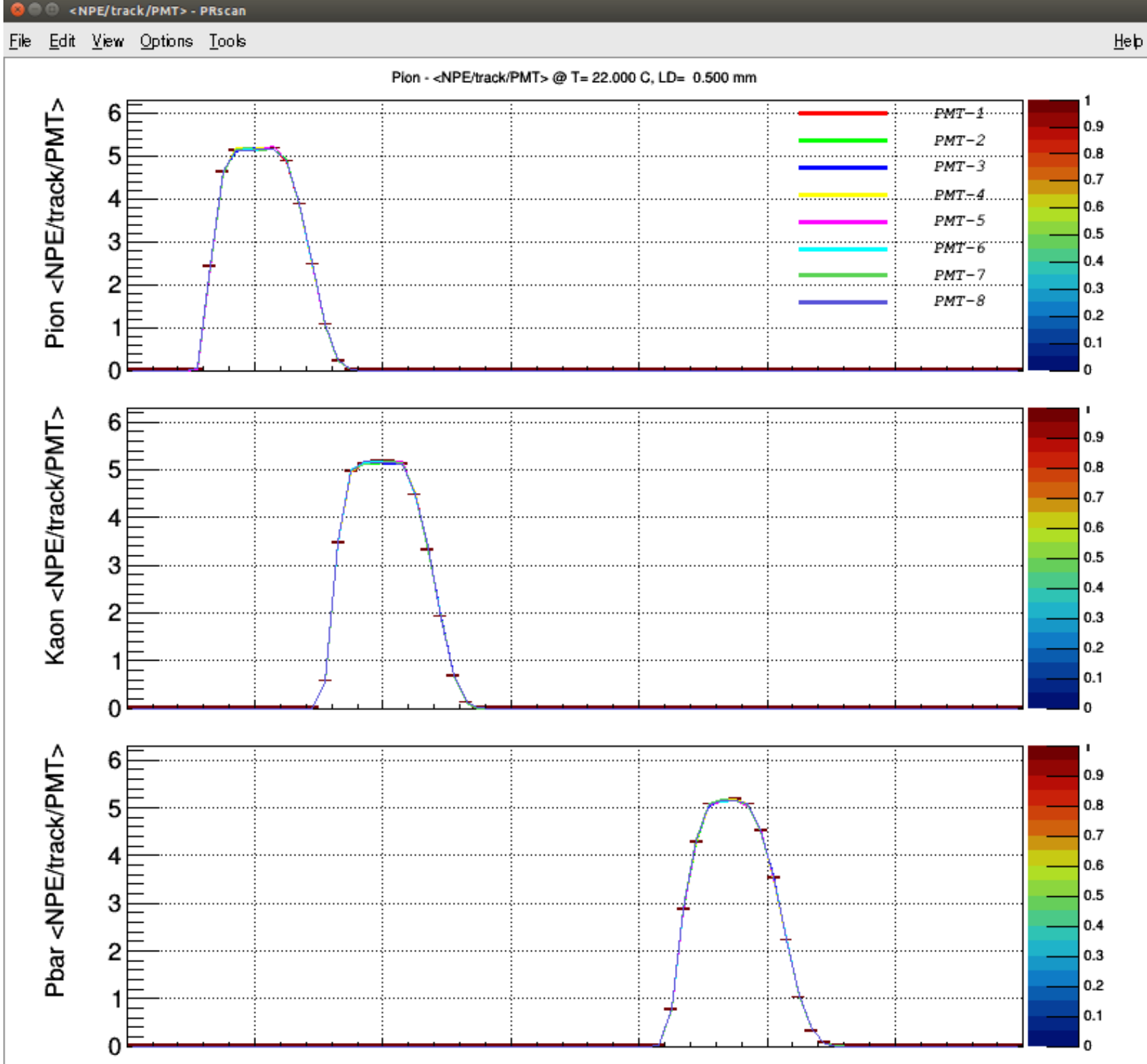
A fine scan :

CEDAR_sim::Run_Scan() - PRscan step 69 (StepSize = -0.010 [bar])
P= 10.105 [bar], T= 295.150 [K],
LD= 0.500 - 10000 Pbars

Gli hits sui PM sono distribuiti come in questa figura



Numero medio di fotoelettroni / traccia / PMT
(sembra un pò troppo grande)



NOTA: ci sono dei warning da capire (ricordarne il motivo);

1)
CEDAR_sim::SampleMultScatterHe() - WARNING : inpt path length = 0.000 . Skipping

2)
CEDAR_sim::DrawCalcNPE() - WARNING : argument of log() for pINPE_A15_MC
is strange (inf) at ipt = 22 ; dNPE set = 0
- Ymaj6[iPt] = 0.000100 , Ymaj7[iPt] = 0.000100 , R67 = 0.000000