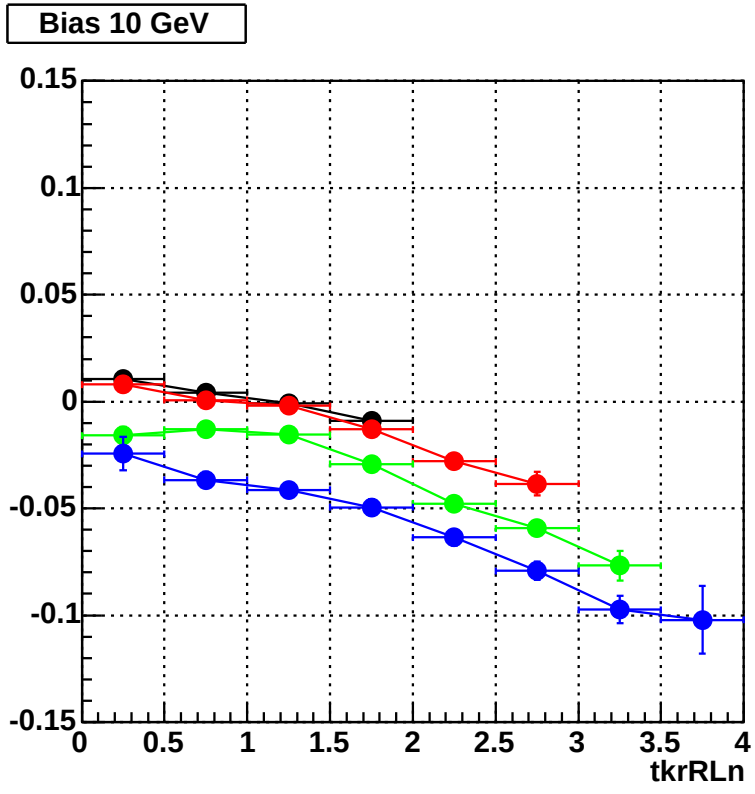
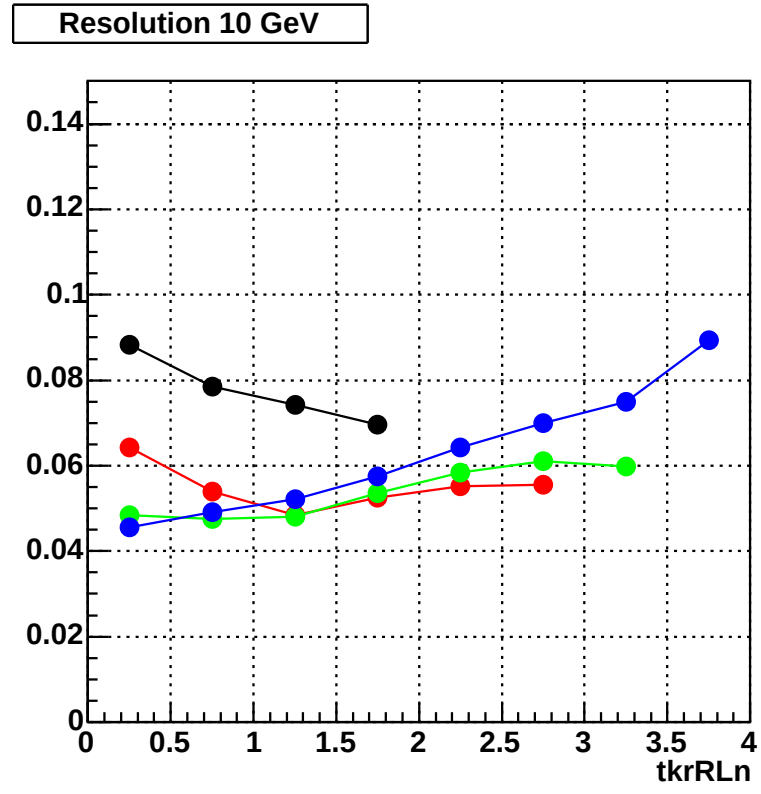
CalFullProfile status

- In my last presentation (analysis meeting) I've mentionned a problem of bias at large incoming angles, degrading the resolution.
- This bias was correlated to the radiation length in the tracker.
- The cause of the bias was the fact that I use a pure CsI detector in Geant4 to determine my radial profile model.
- For showers starting in the firsts layers of the tracker, the shower is wider than in my model.
- A simple solution : widen the radial profile taking into account the radiation length in the tracker.
- This has been done and the code with the correction has been commited 2 hours ago.

Bias dependance

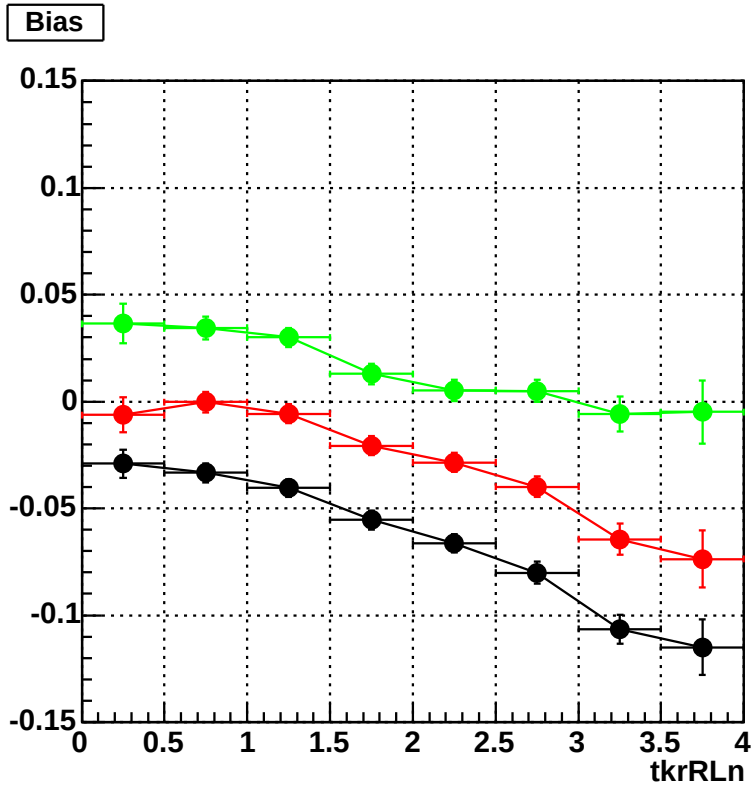
- 10 GeV - black 0, red 50, green 60, blue 70 deg.

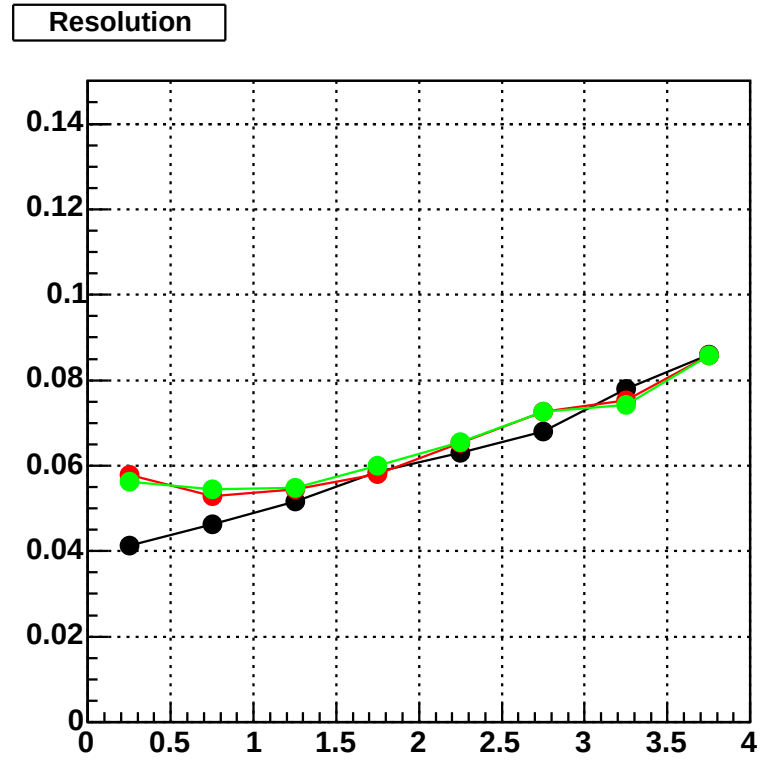




Widening the radial profile

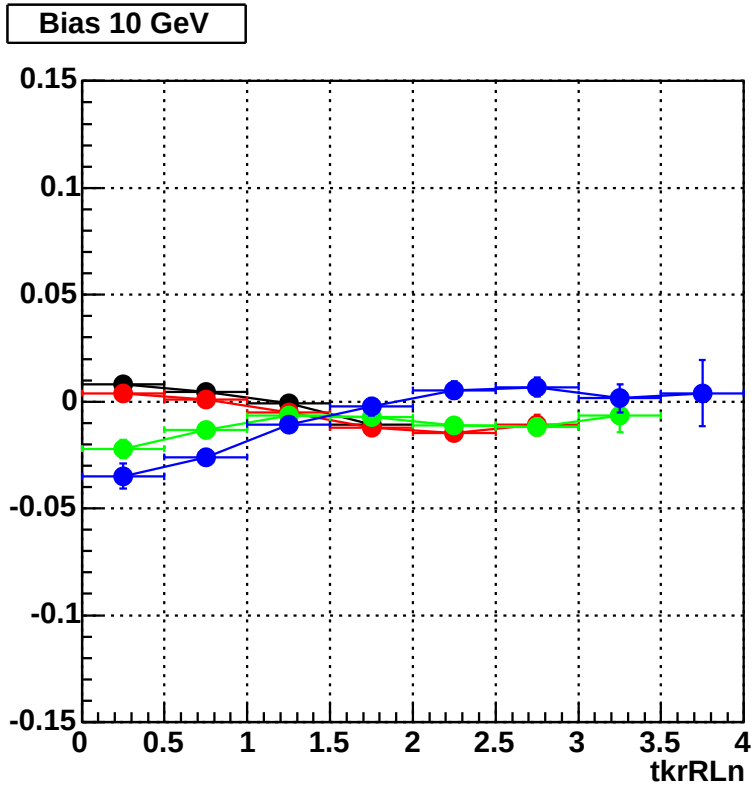
- 10 GeV - 70 deg : widening factor = 1 (black) 1.5 (red) 2 (green)

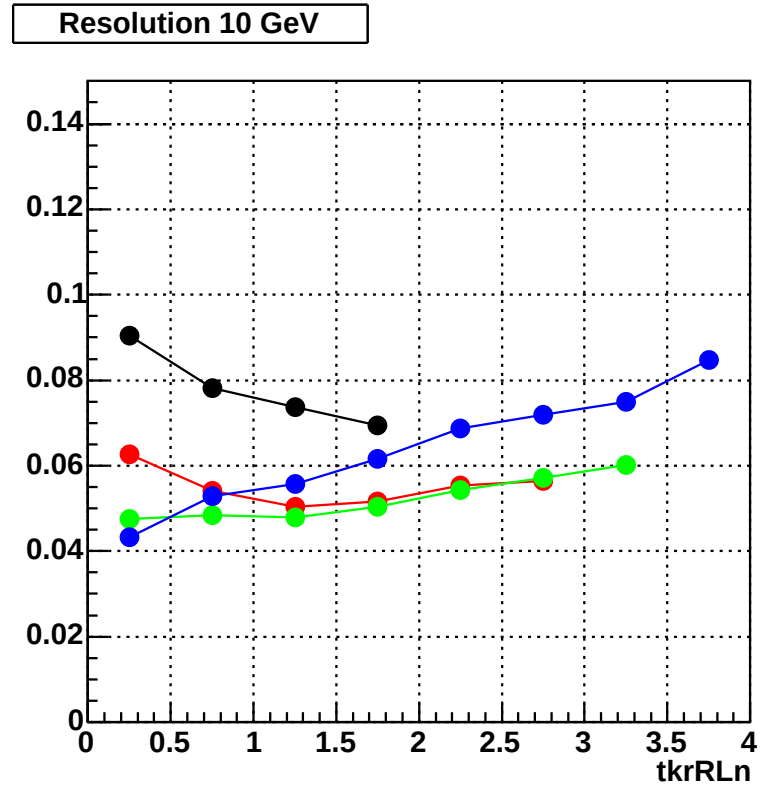




After widening correction

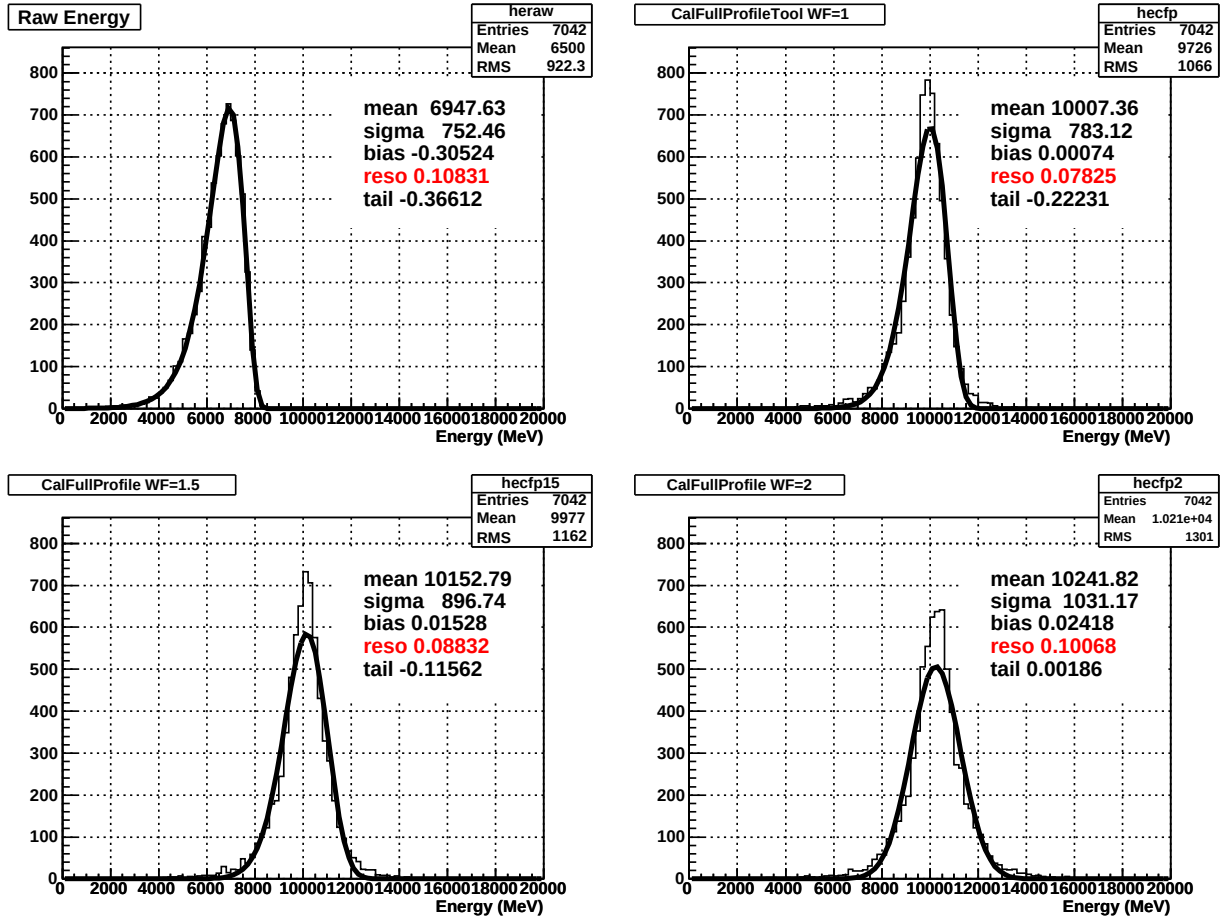
- the widening factor is a simple function of the incoming angle and the radiation length in the tracker.
- 10 GeV - black 0, red 50, green 60, blue 70 deg.



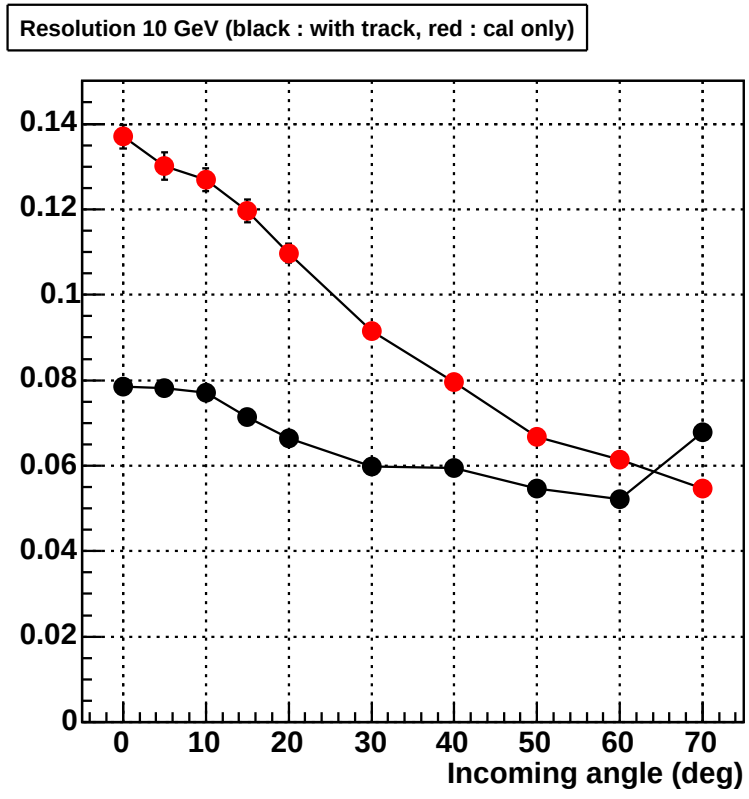


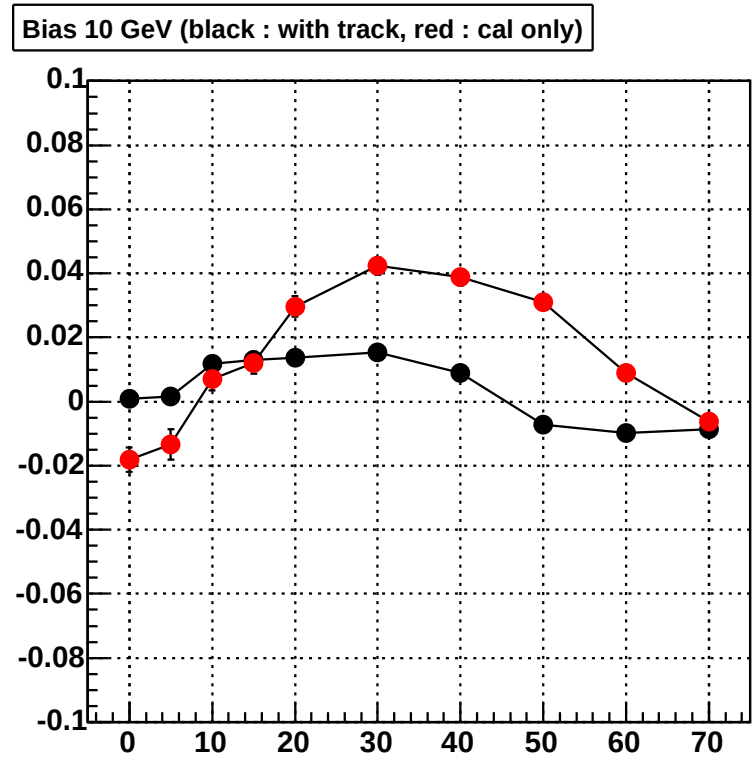
And at small incoming angles ?

- At small angles : my radial profile model is correct.
- Widening the radial profile degrades the resolution

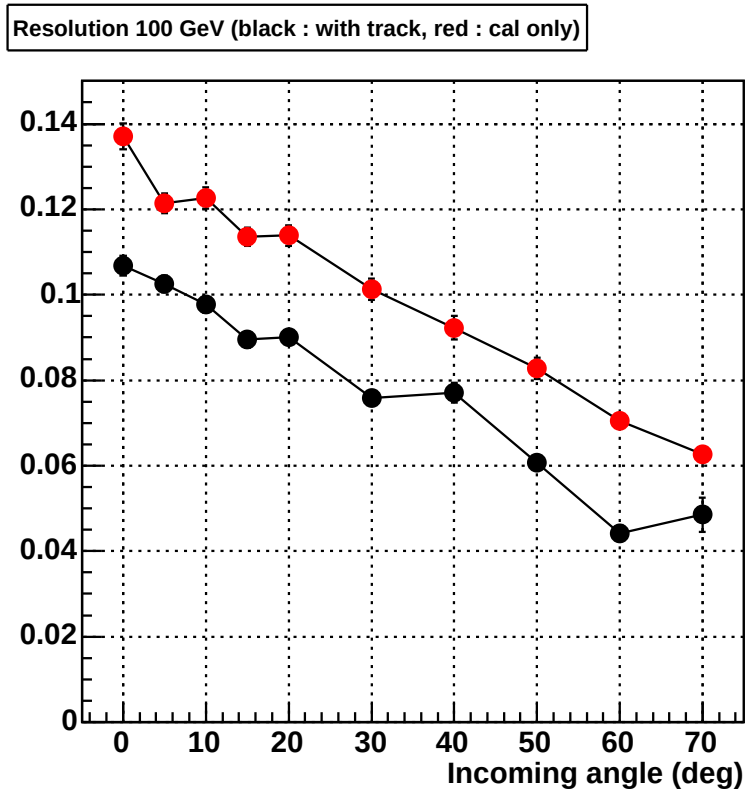


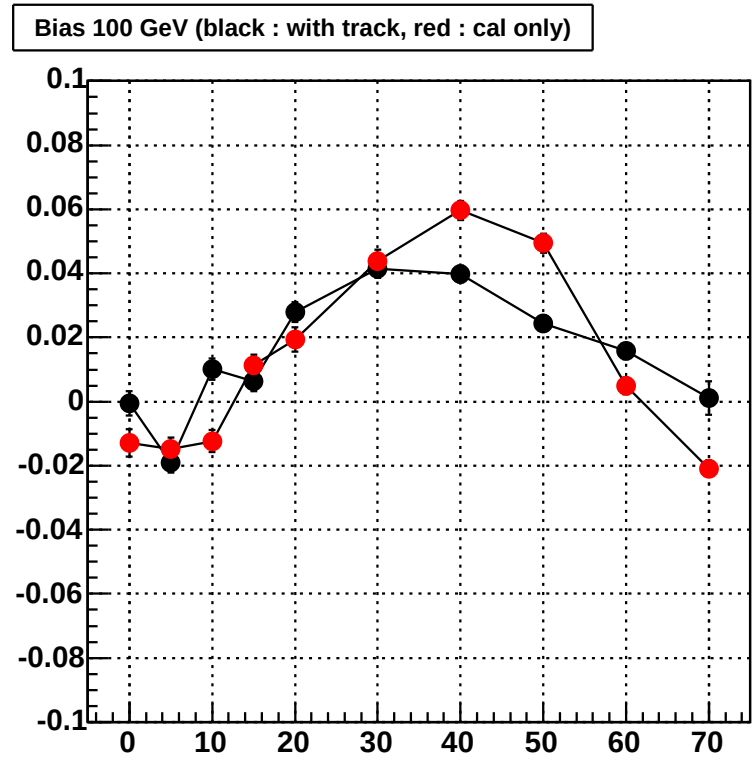
Figures of merit 10 GeV





Figures of merit 100 GeV



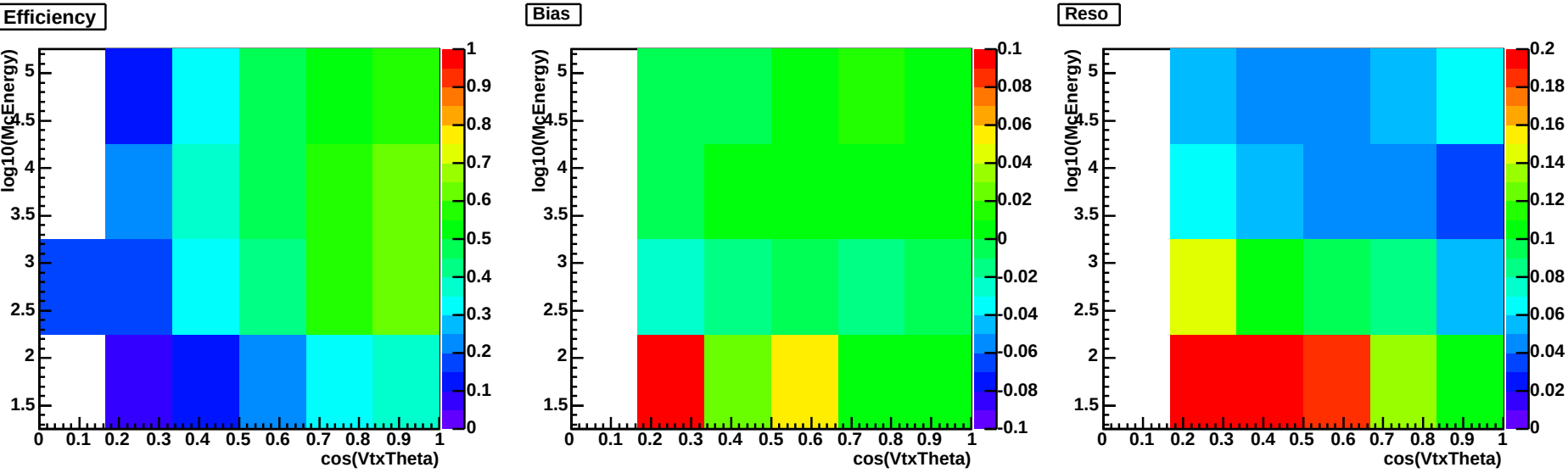


Quick look at the merit ntuple

- “Ideal” classification tree à la Richard
- Looking at radiation length variables

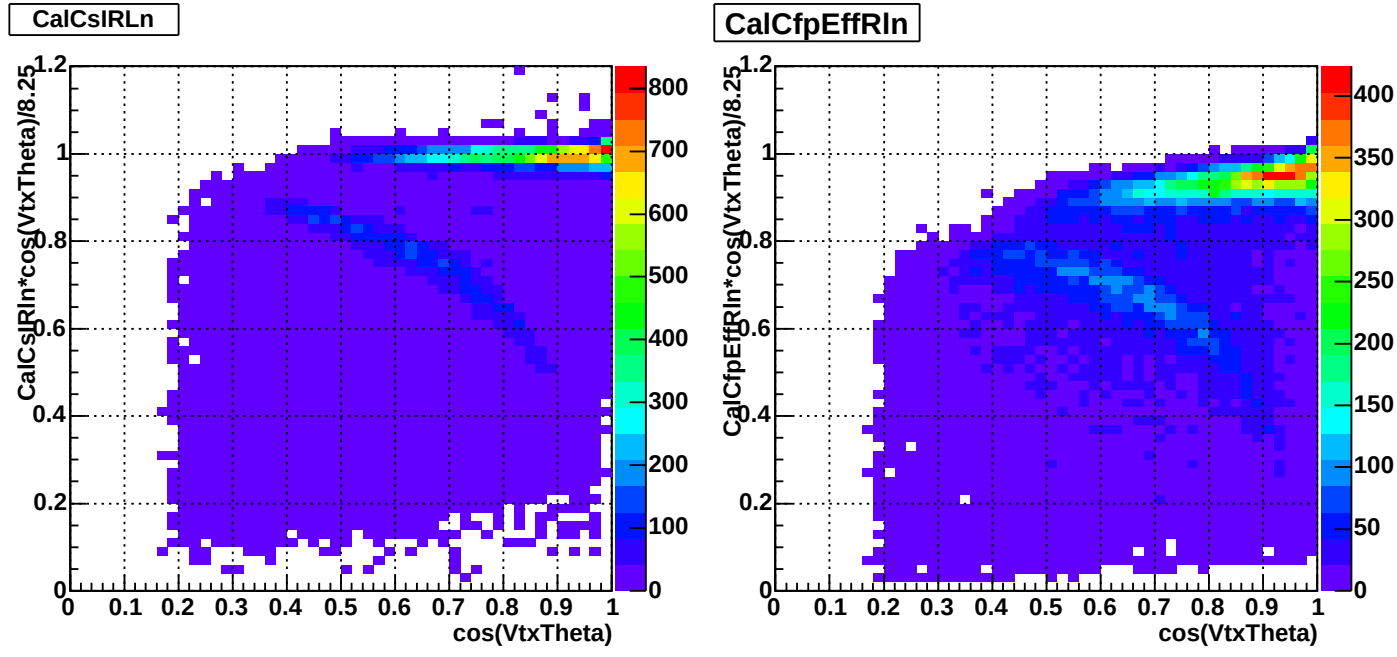
Ideal classification tree

- For each event, pick up the closest energy to McEnergy
- CalCsIRLn>4 and $|\mathrm{Energy} - \mathrm{McEnergy}|/\mathrm{McEnergy} < .2$
- Large tails



Radiation length in calo

- Normalized radiation length
- $8.25 = 8 \times (\mathrm{CsIHeight}/18.5) \times (\mathrm{CsIWidth}/\mathrm{cellHorPitch})$



Selecting crack events

- McEnergy>2000 - CalCsIRLn>4