



# **Calibration with E/p** **Update**

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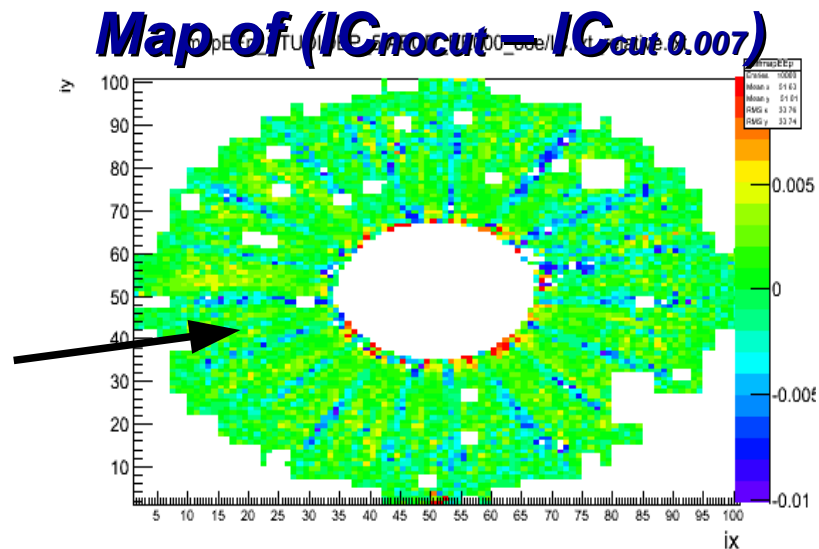
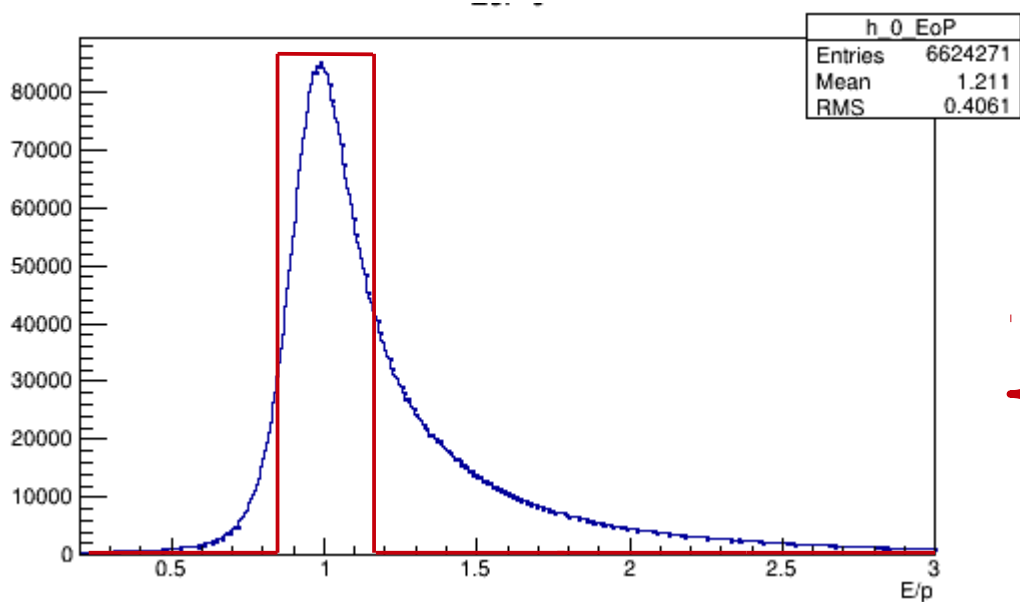
***For Milano Bicocca-Group***

**MoCa meeting – 28/05/2015**

# Introduction

From previous MoCa meetings:

- Effect of HLT  $E/p$  cut on the  $E/p$  calibration:  
% level with the tightest cut
- Found that the “phi-structures” in the ICs come from events in the  $E/p$  tails



→ Try a different reweighting method: a “**step-function**” instead of the **all  $E/p$  distribution**

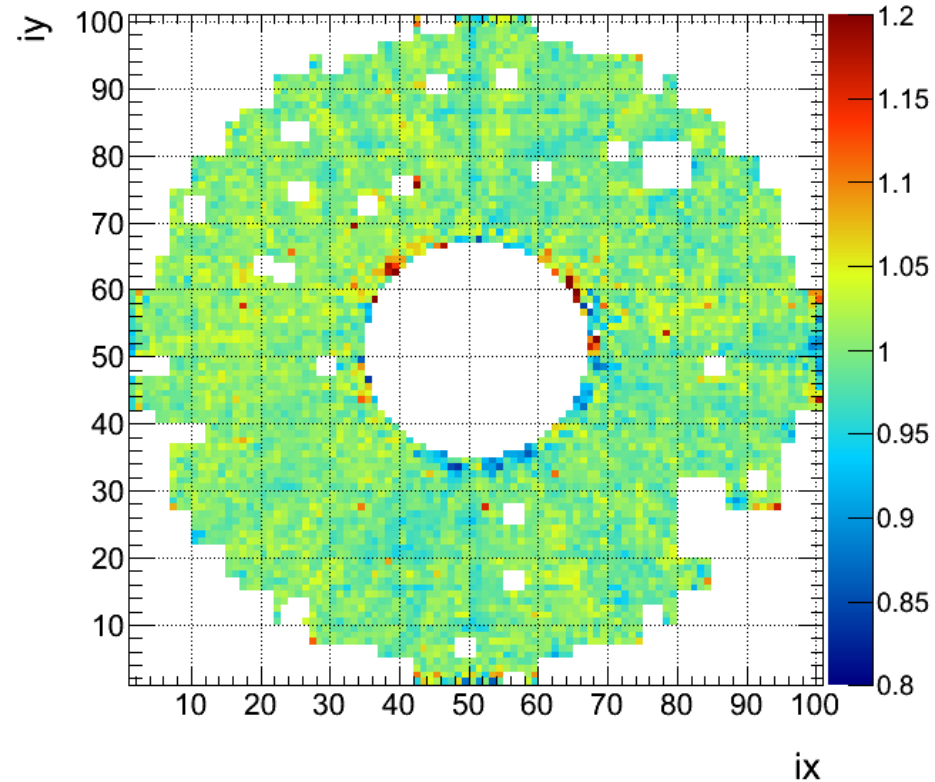
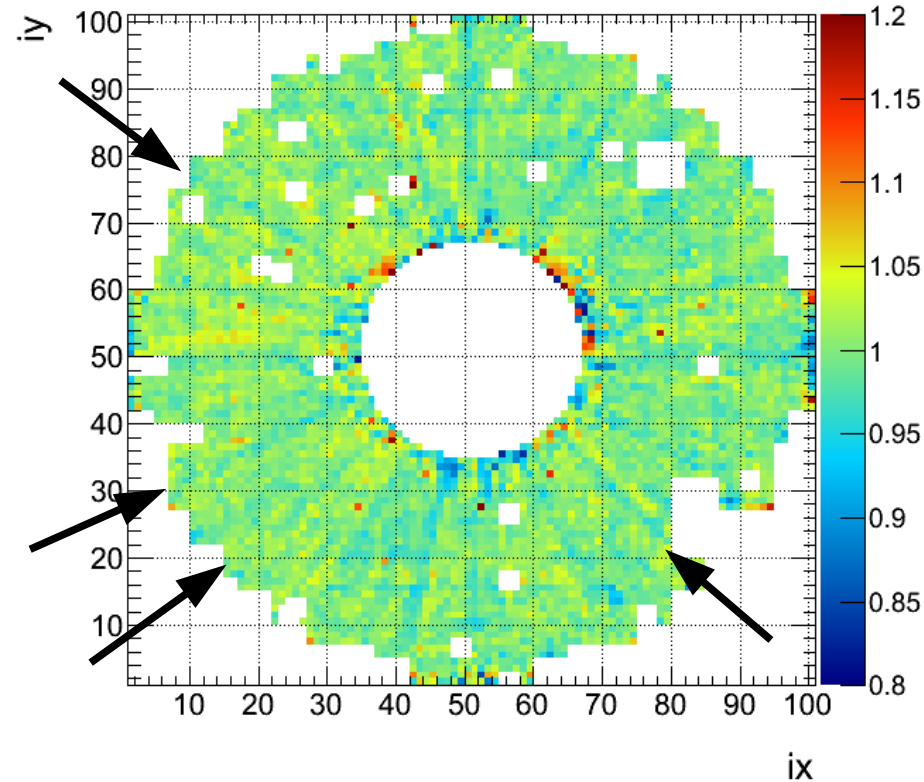
$\left\{ \begin{array}{l} \text{If } 0.85 < E/p < 1.15 \rightarrow \text{Weight}=1 \\ \text{else} \rightarrow \text{Weight}=0 \end{array} \right.$

(Iterative)

# Results (EE+)

*Reweighting with the all  $E/p$  distrib.*

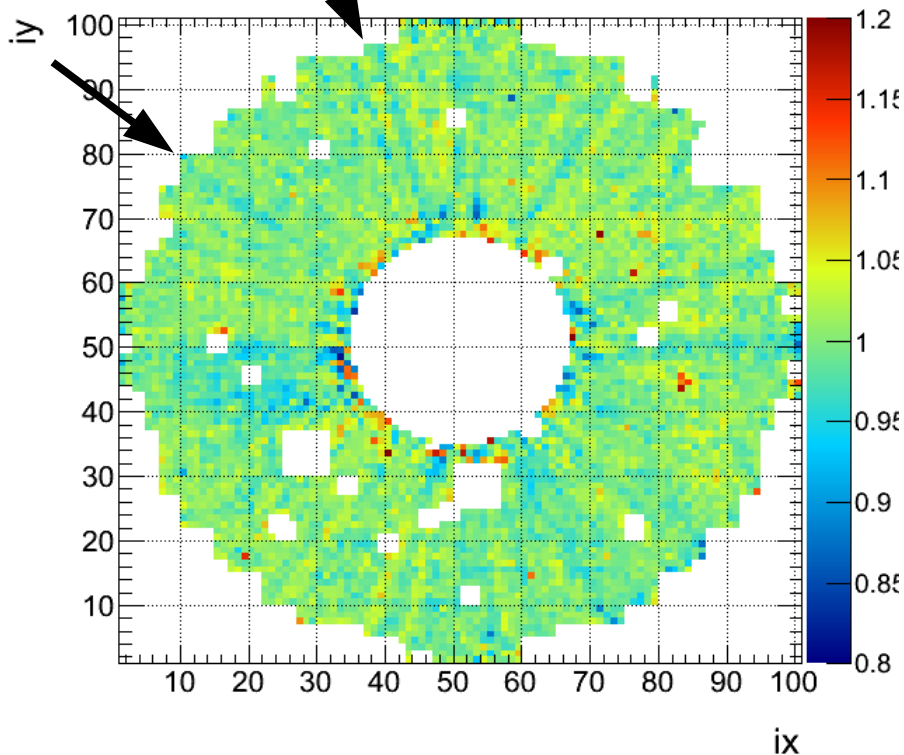
*Reweighting with the step-function*



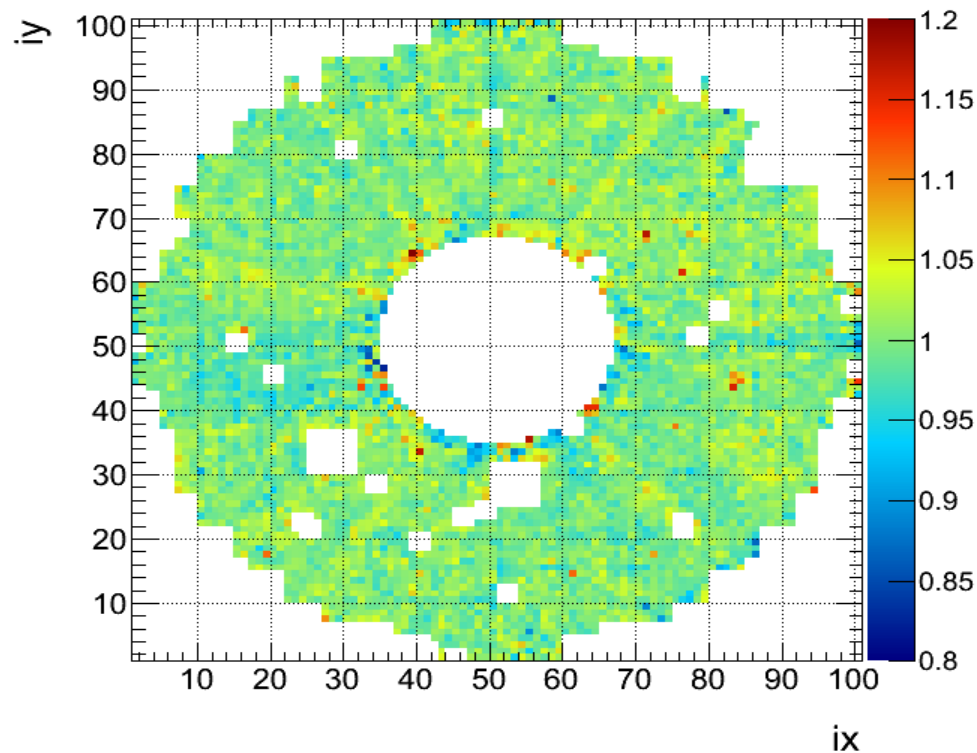
***A lot of “phi-strips” disappear (or they are less evident)***

# Results (EE-)

*Reweighting with the all  $E/p$  distrib.*



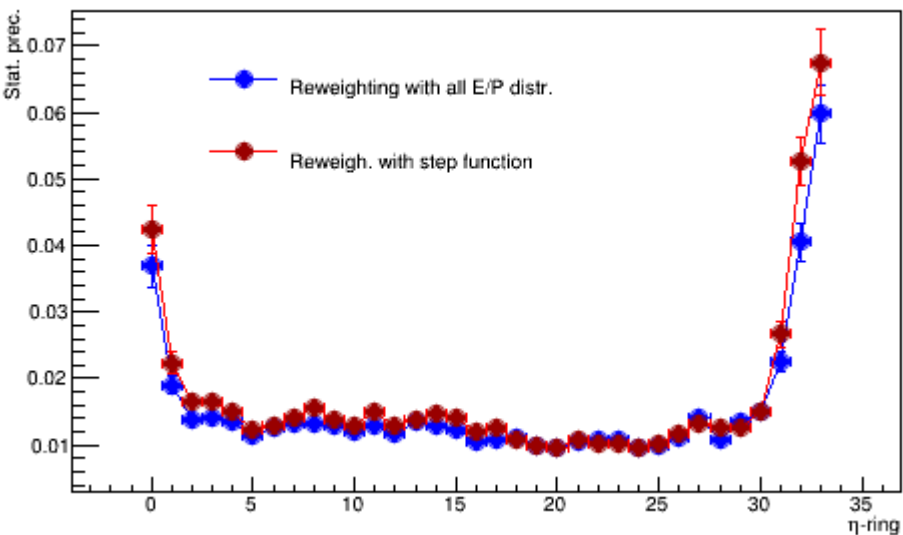
*Reweighting with the step-function*



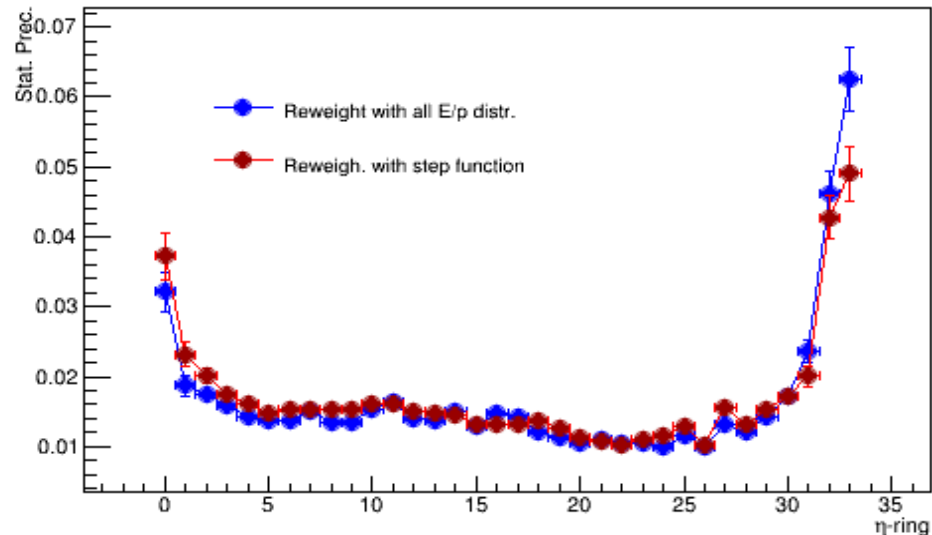
***Less clear, but effect still visible***

# Impact on statistical precision

**EE+**



**EE-**



*Impact on the statistical precision seems negligible*

# To do

*Events in the E/p tails are responsible for the phi-modulation observed in the ICs*

**→ Structures seem to disappear using only the E/p core in the calibration**

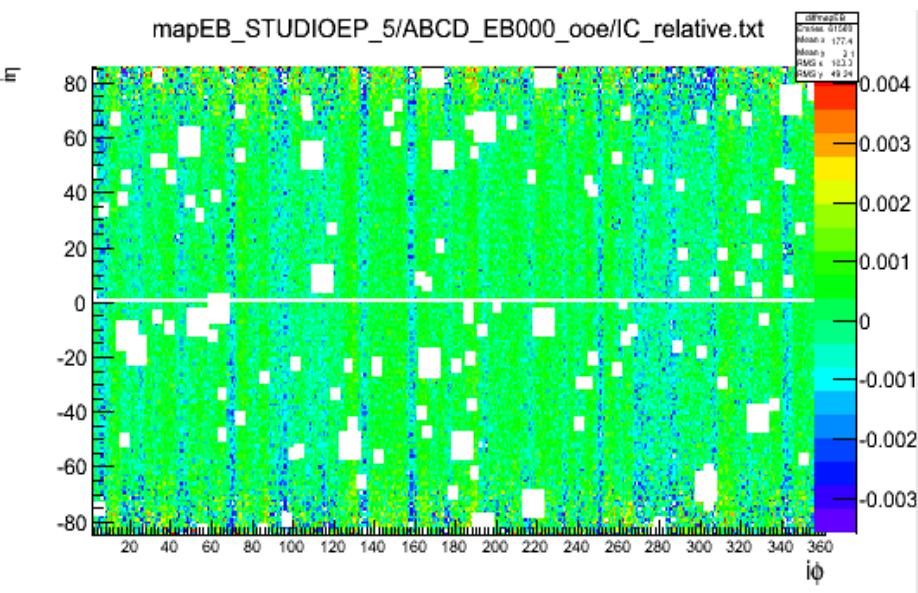
*To do:*

- Check if there is any bias using MC*
- Test different windows for the reweighting*
  - Check effect on the barrel*

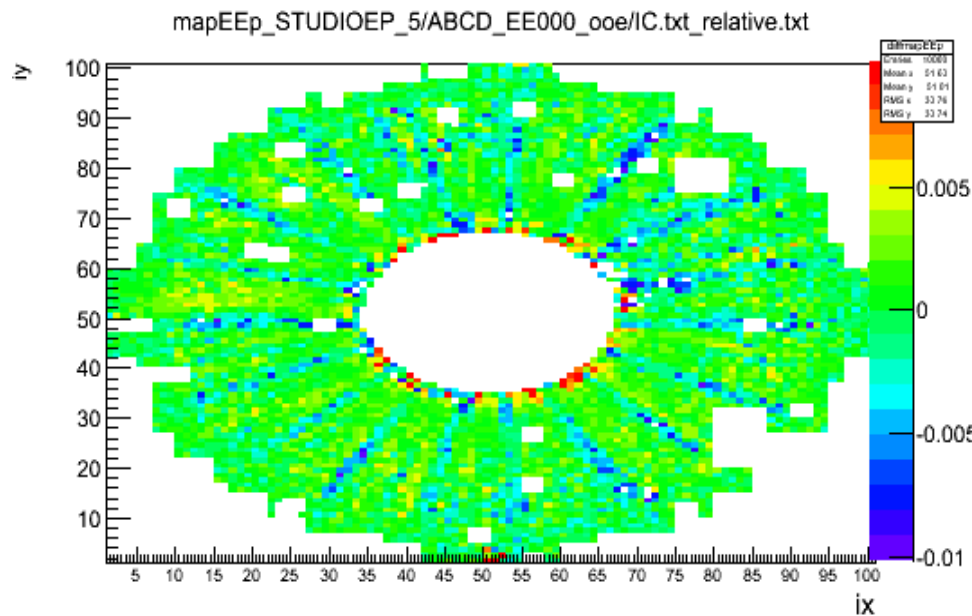


# Backup

## Map of $(IC_{nocut} - IC_{cut 0.007})$



**EB**



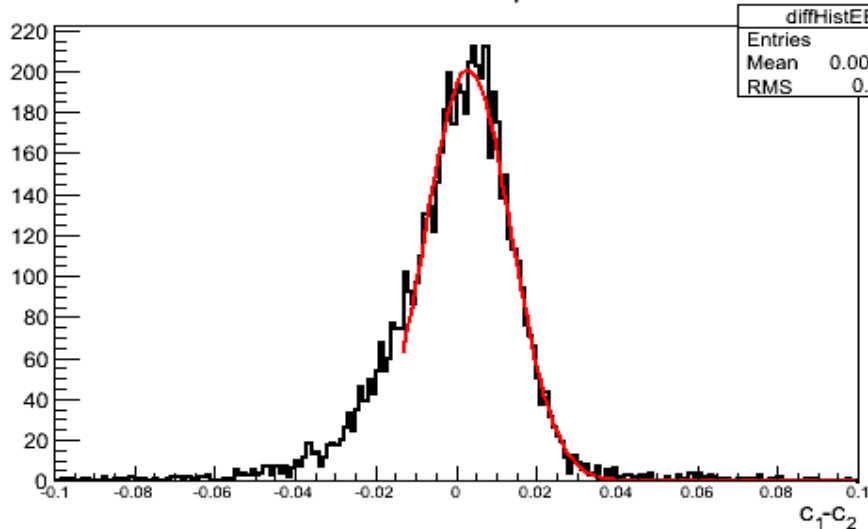
**EE-**



# Difference between the two set of IC

**EE+**

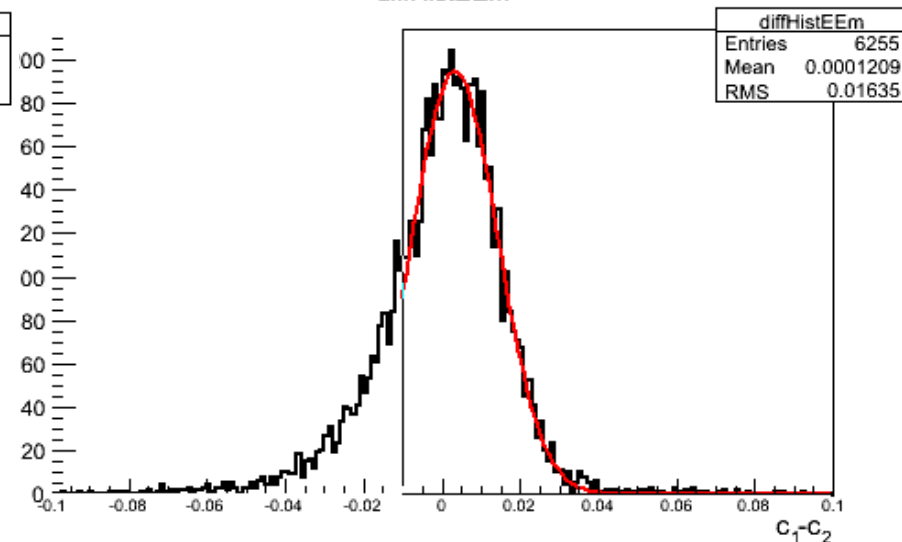
diffHistEEp



**$\sigma$  fit = 1.08 %**

**EE-**

diffHistEEm



**$\sigma$  fit = 1.10 %**

***Difference is within statistical precision in the endcap***

# Cut at HLT vs. reweighting with step-func.

$|1/E-1/p| < 0.007$  at HLT

*Reweighting with the step-function*

