The status of the DCA-based correction for material and weak decays feed-down in multiplicity bins

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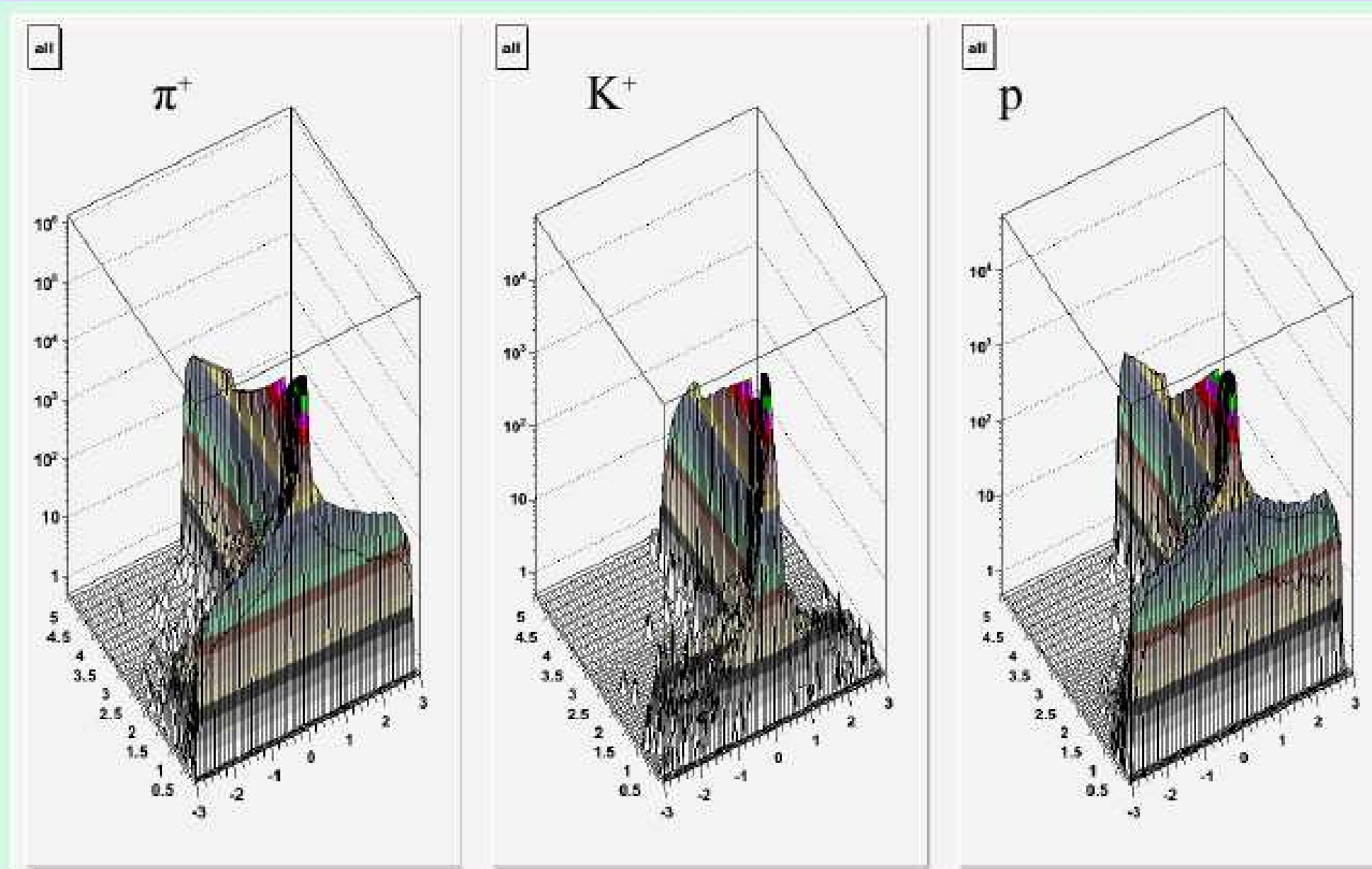
Outline

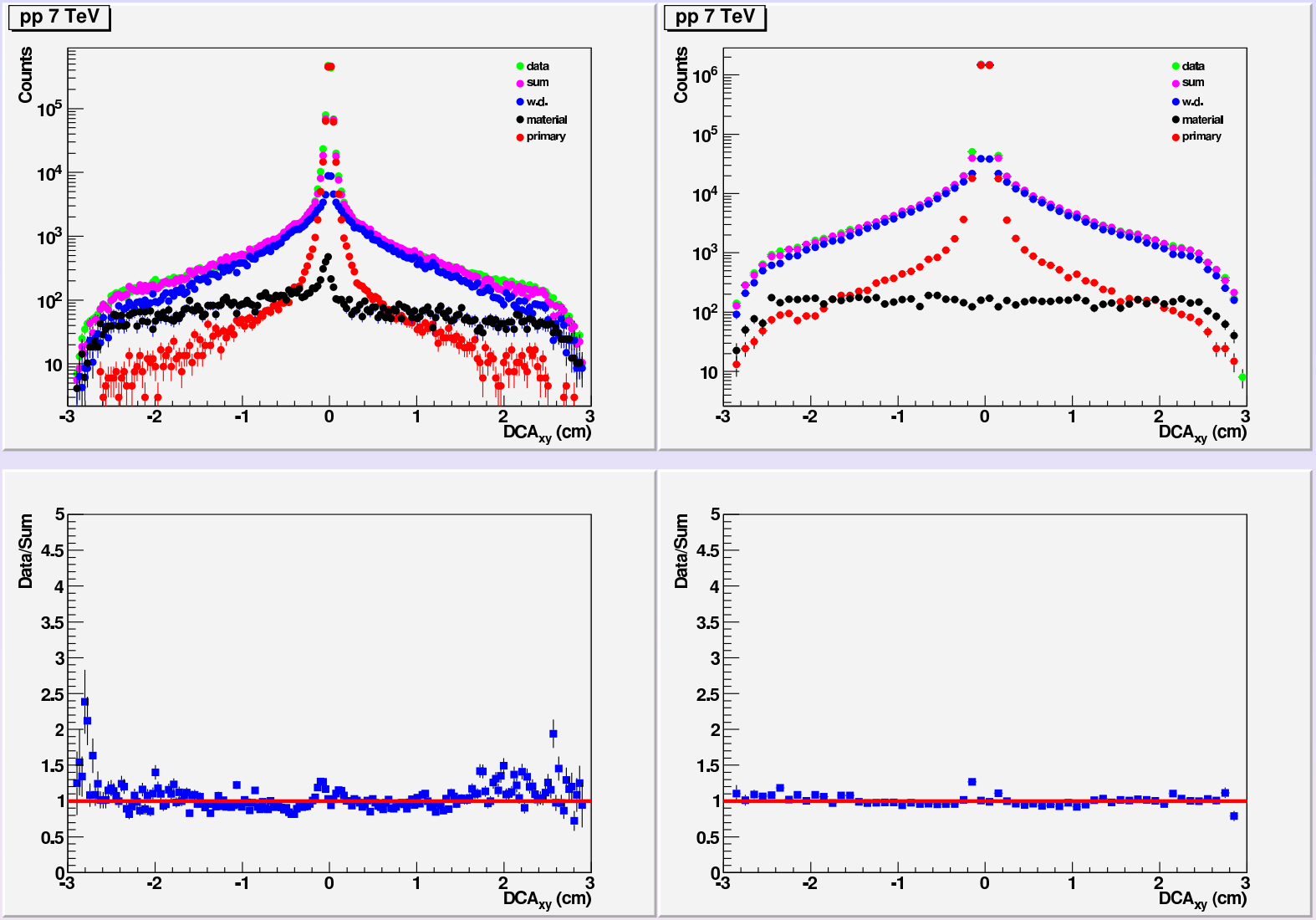
- Short reminder
- Identified charged particles
  - p_t dependence
  - multiplicity dependence ("spectra" standard multiplicity bins)
  - primary and weak decay raw p_t distributions
- Charged particles
- Outlook

DCA p_t dependence



χ^2 test

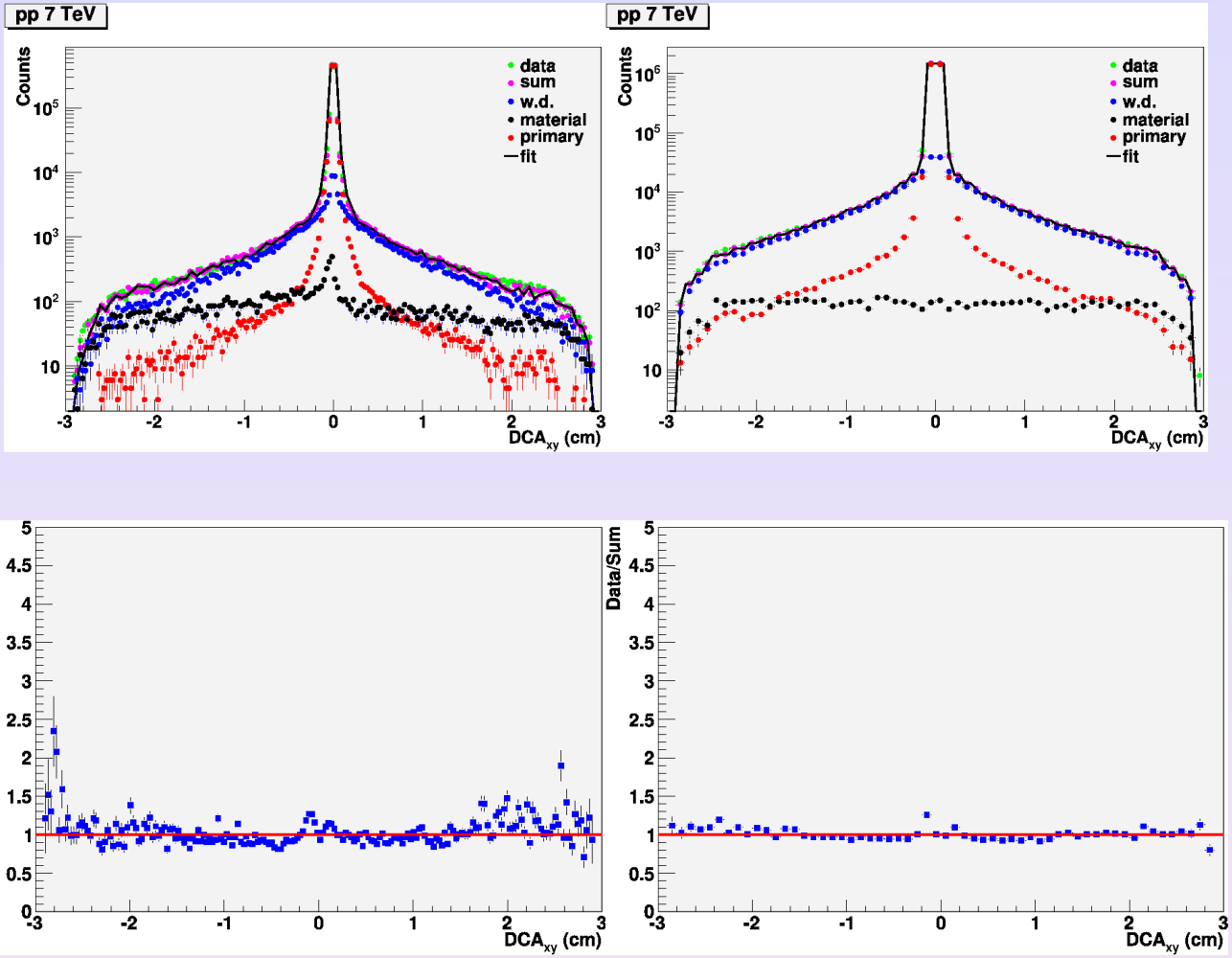
$0.3 < p_t < 0.35$ (MB)



charged particles(c.p.) π^+

MC fit to data

$0.3 < p_t < 0.35$ (MB)

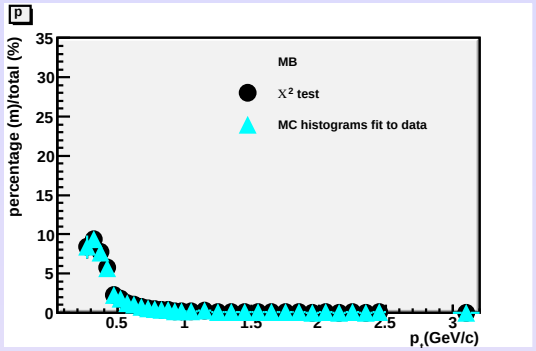


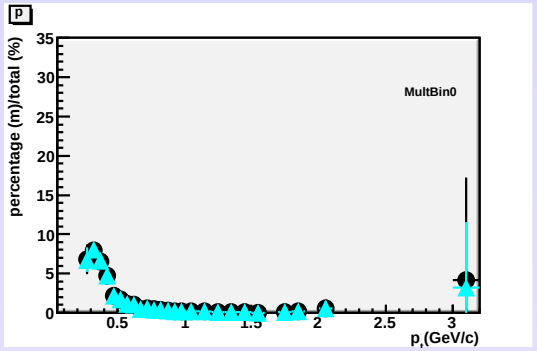
charged particles(c.p.)

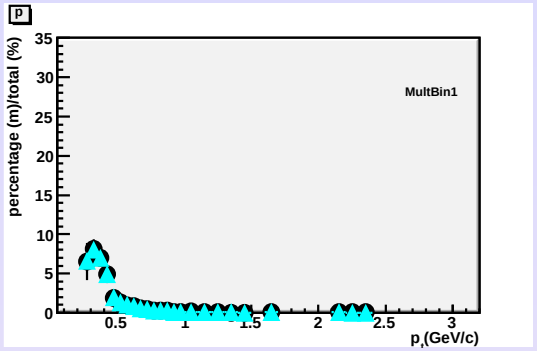
π^+

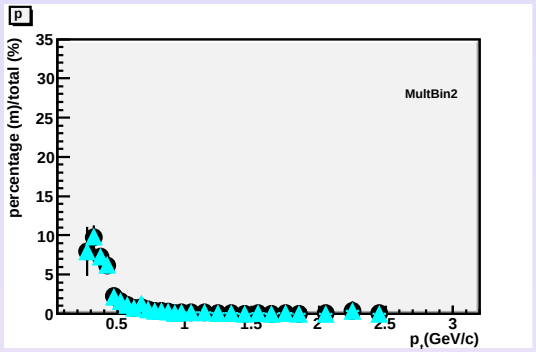
Contamination (%) - material (m)

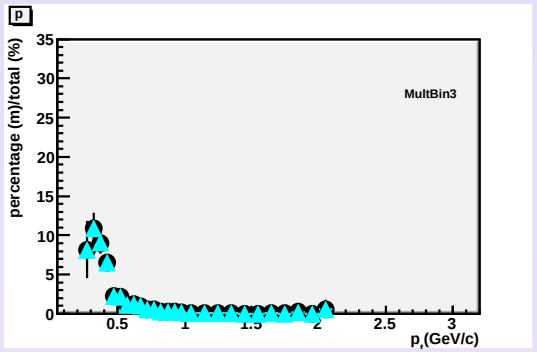
p_t dependence - protons

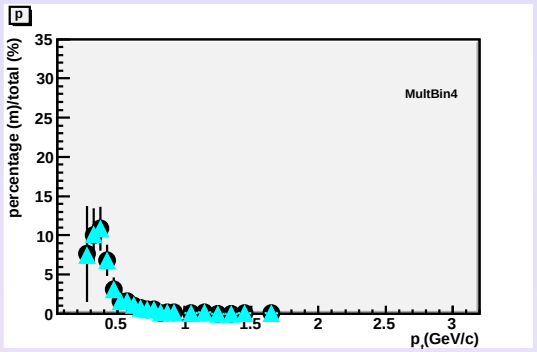


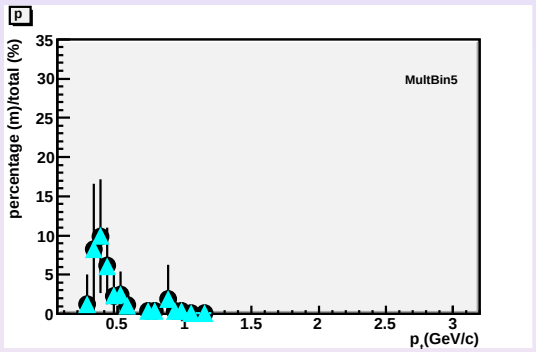








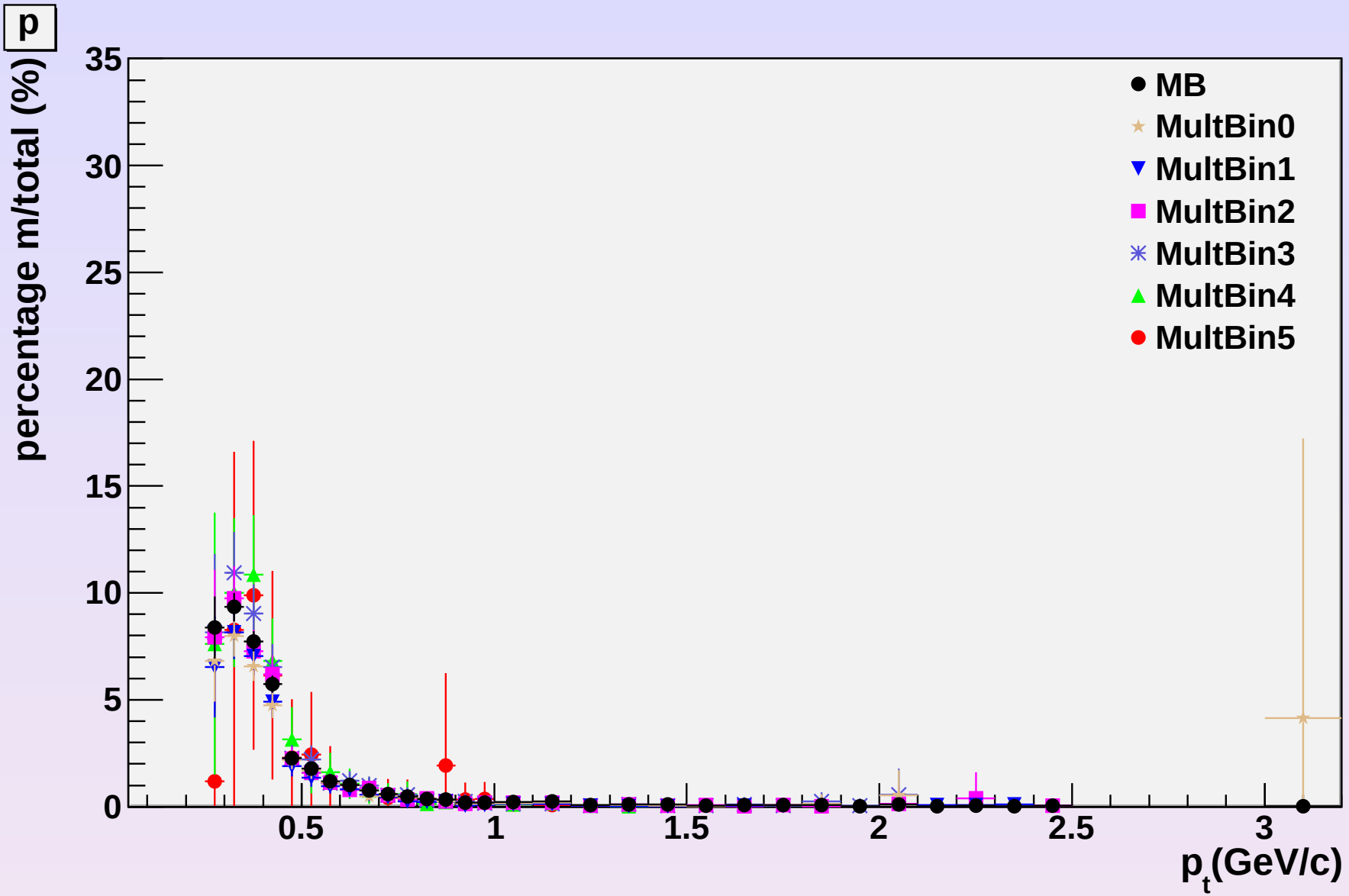




$$DCA_{xy} = 0.0182 + 0.0350/p_t^{1.01}(\text{cm})$$

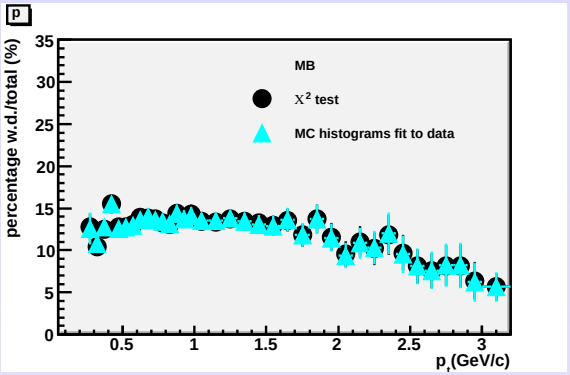
Contamination (%) - material

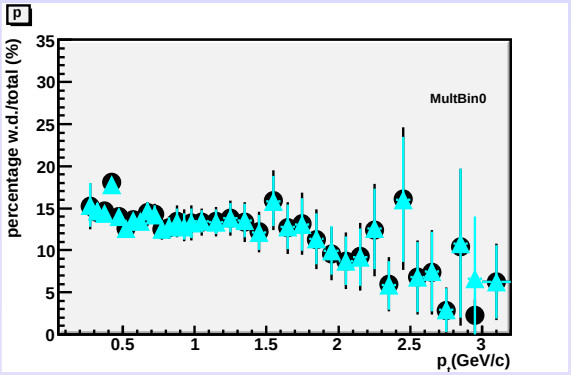
p_t dependence - protons

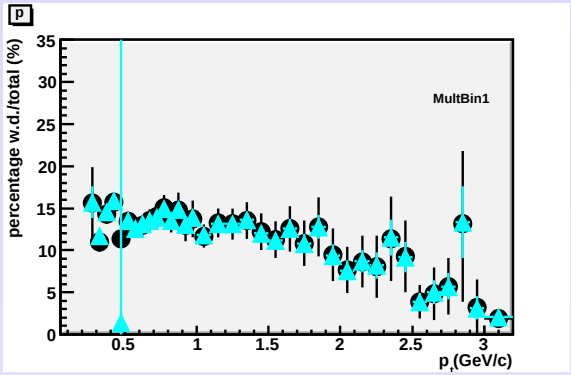


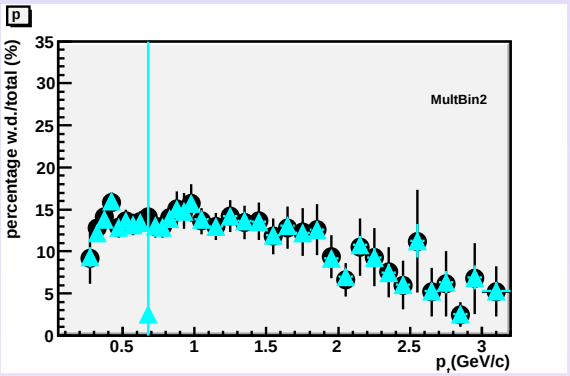
Contamination (%) - weak decay (w.d.)

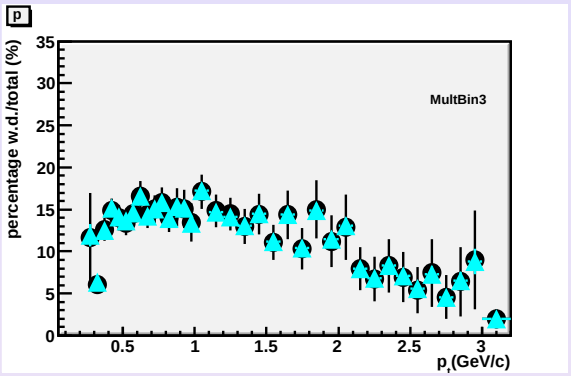
p_t dependence - protons

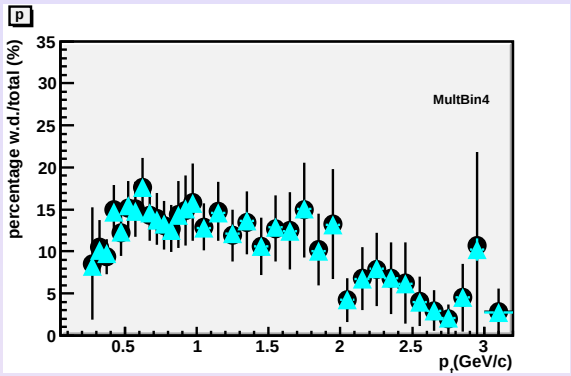


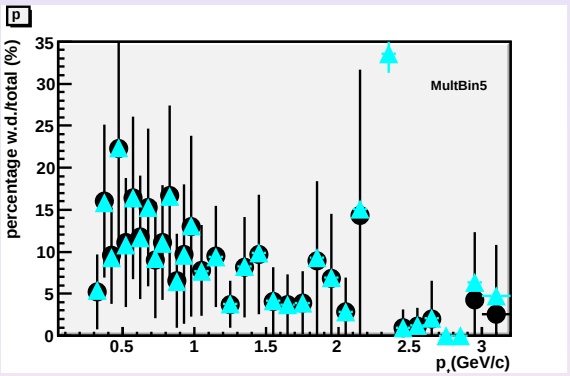






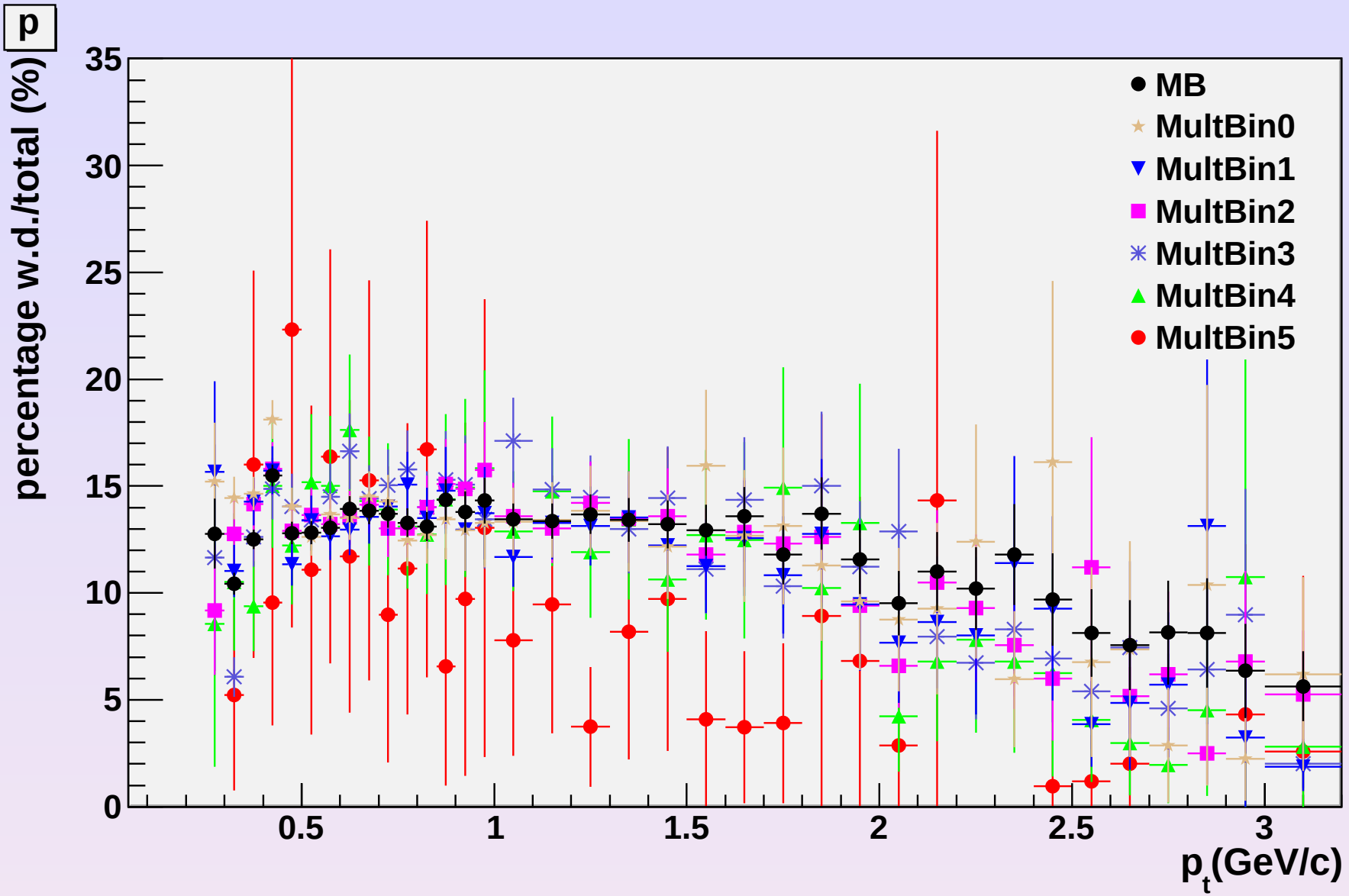






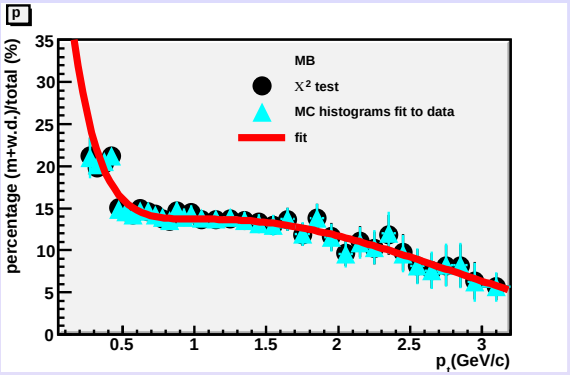
Contamination (%) - weak decay

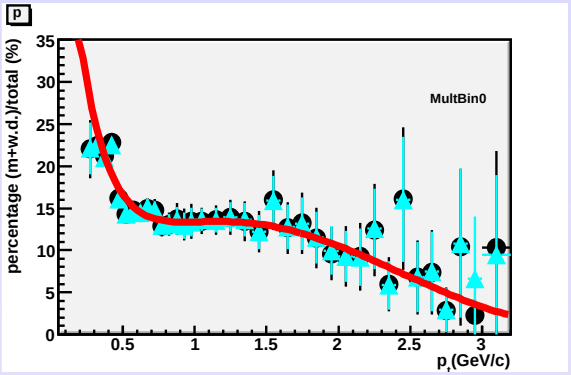
p_t dependence - protons

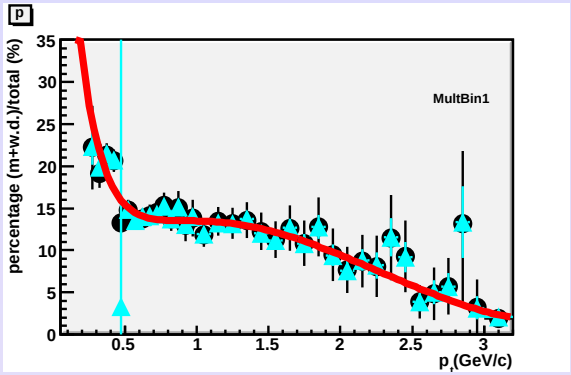


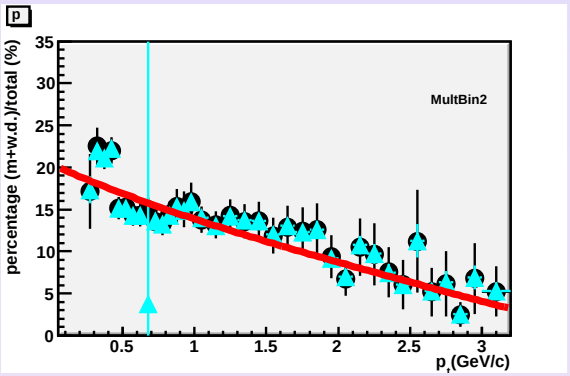
Contamination (%) - (m+w.d.)

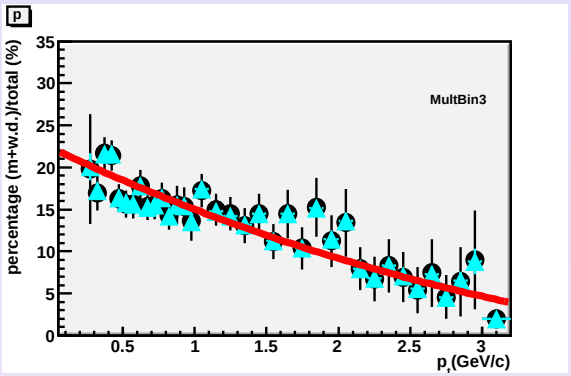
p_t dependence - protons

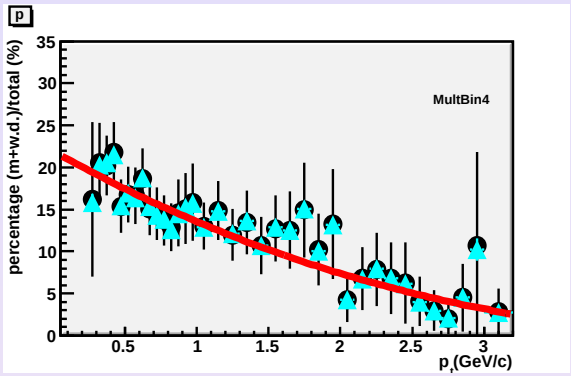


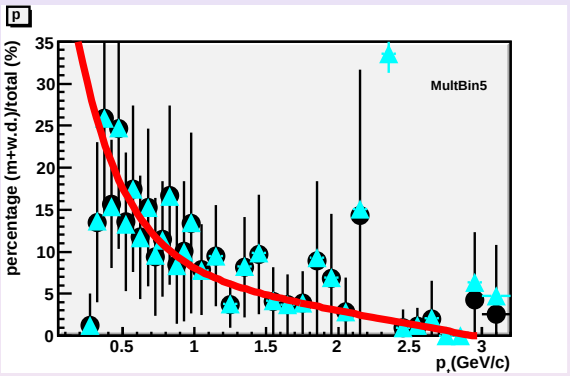






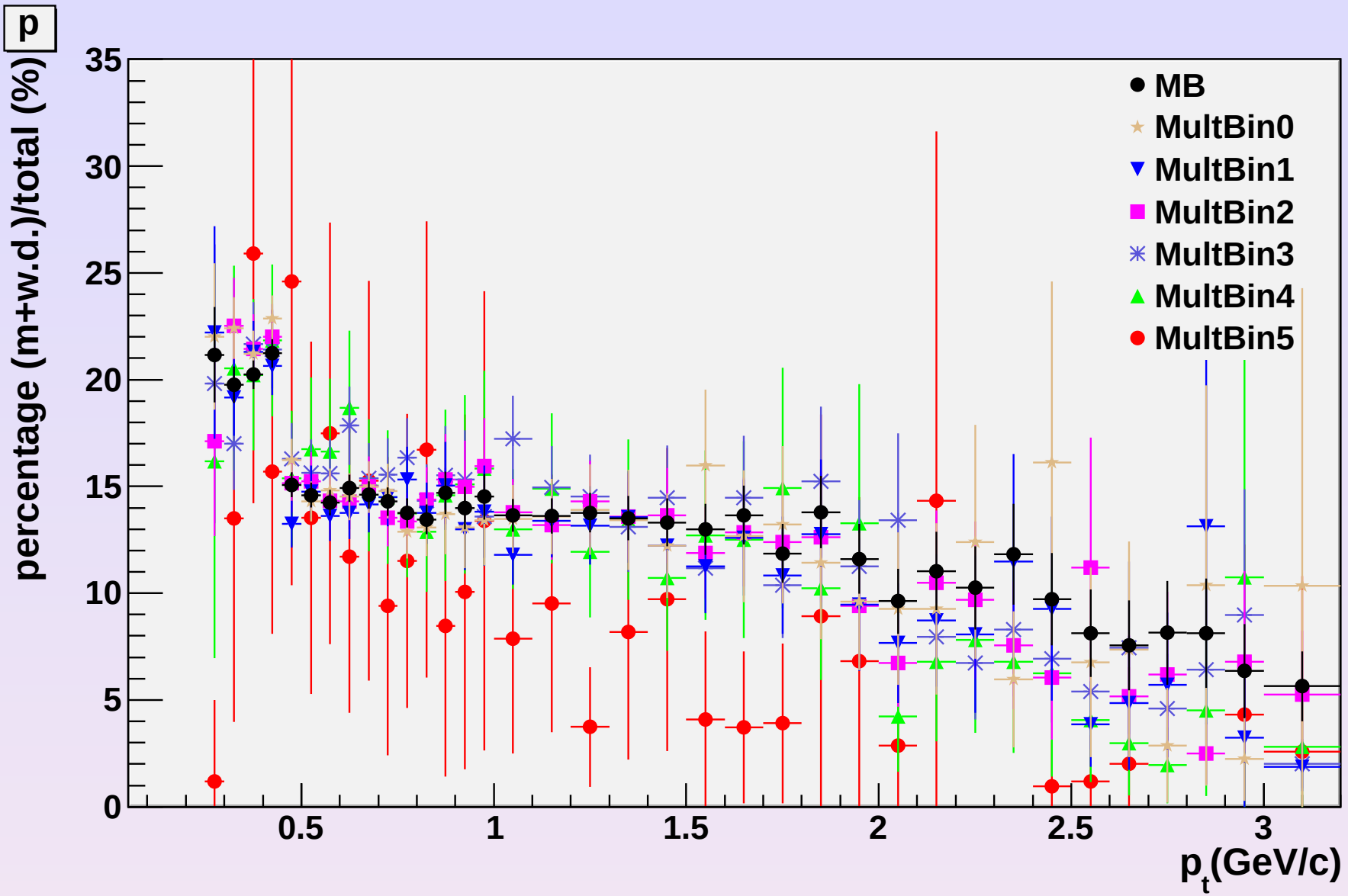




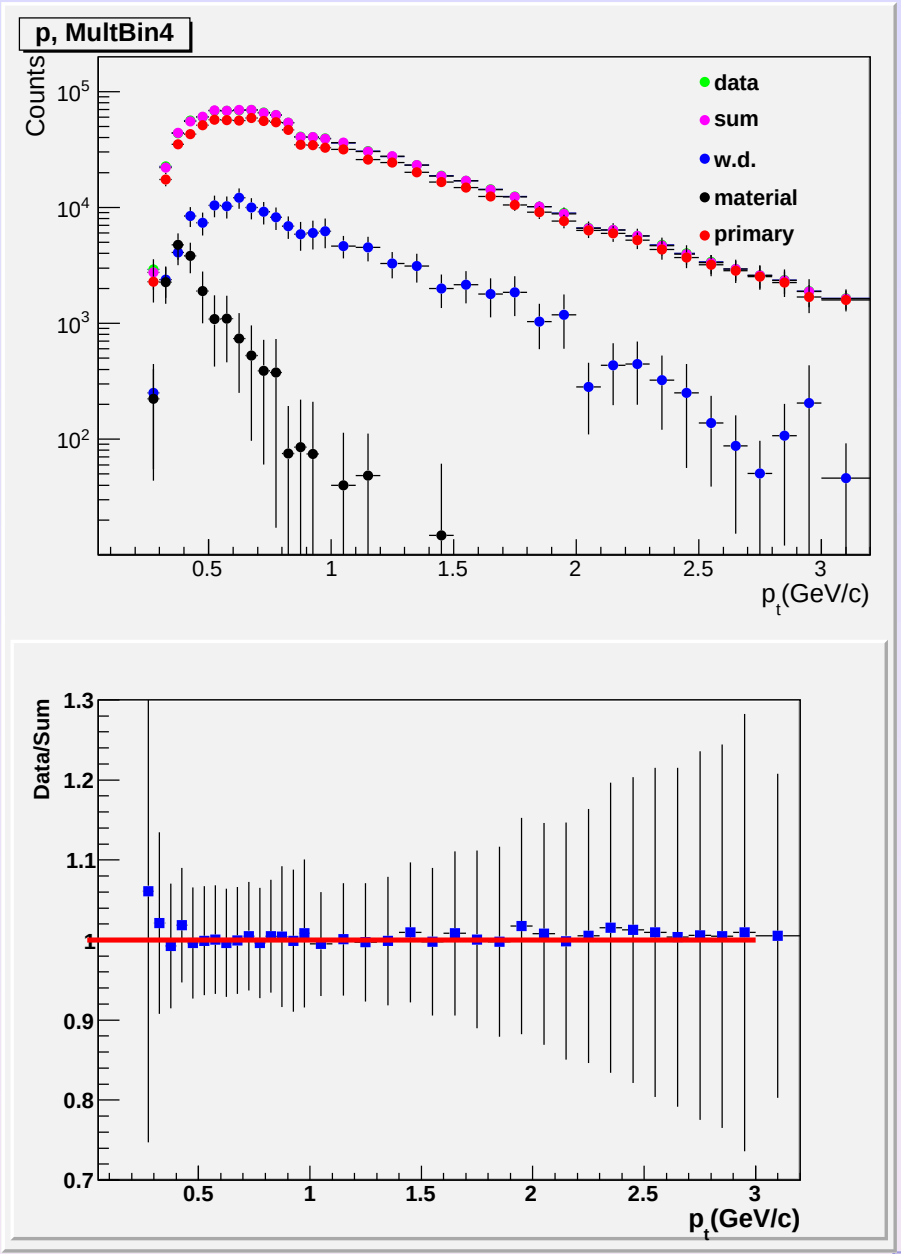


Contamination (%) - (m+w.d.)

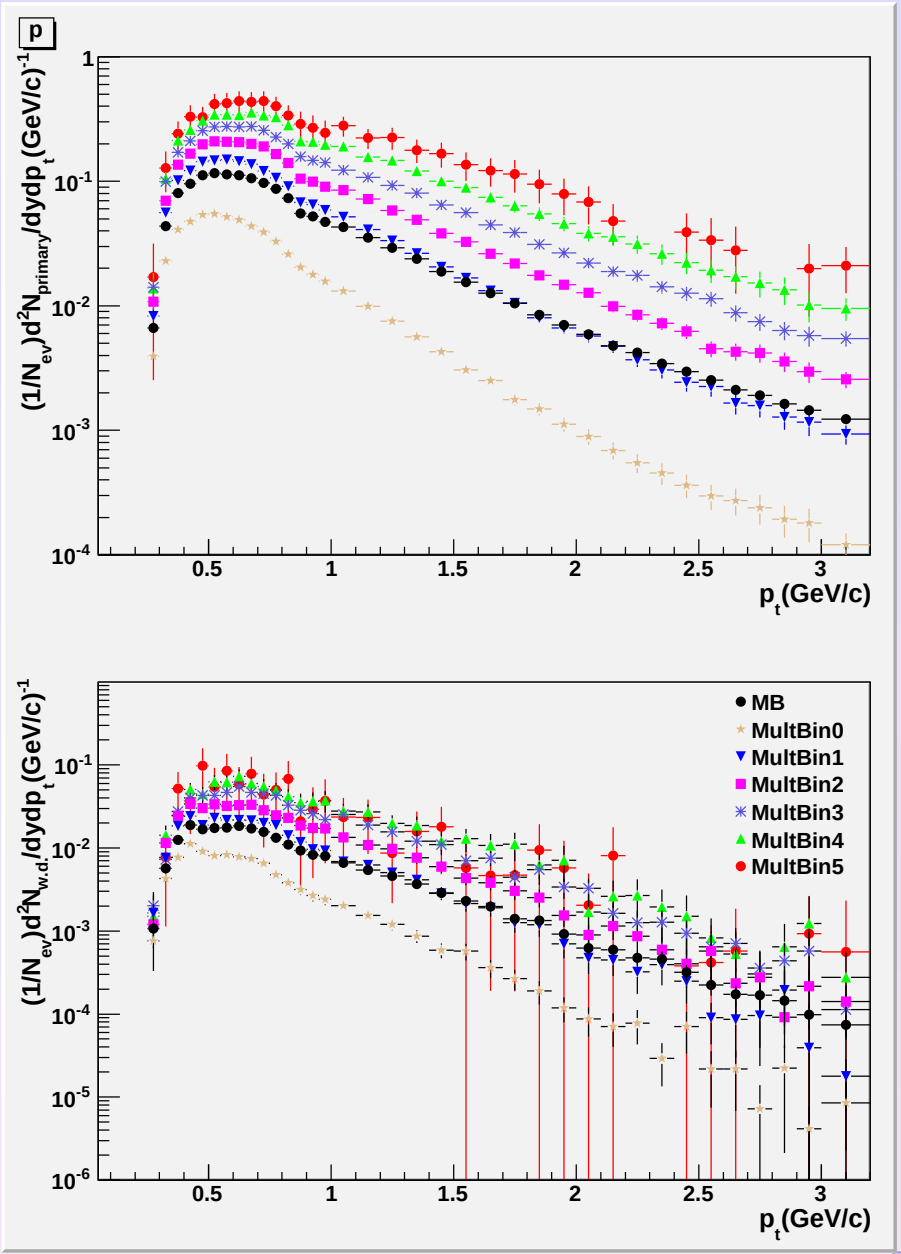
p_t dependence - protons



Raw p_t distributions - protons

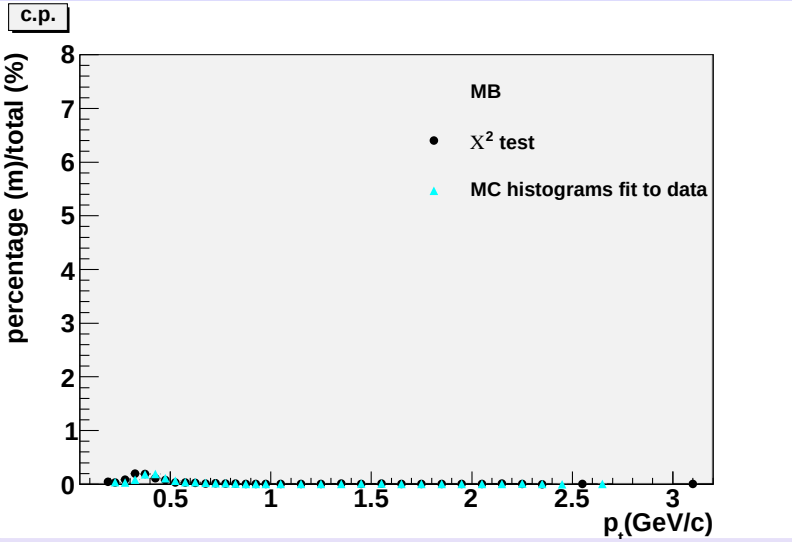


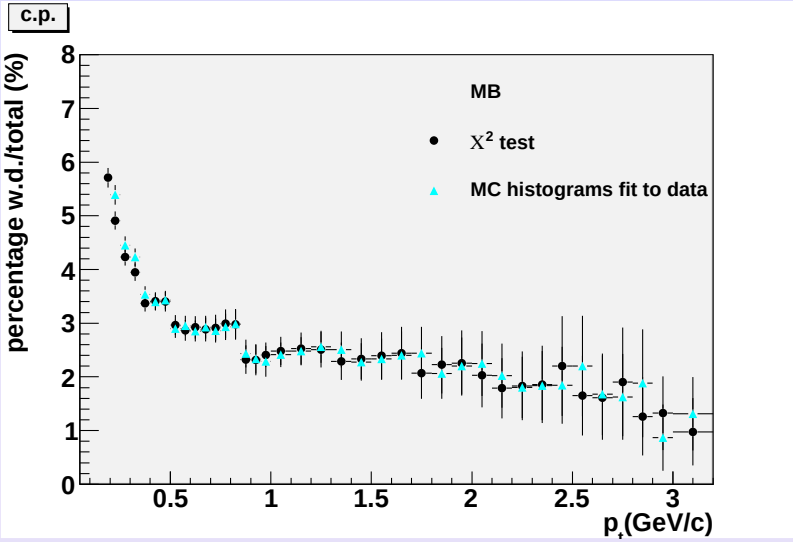
Raw p_t distributions - protons

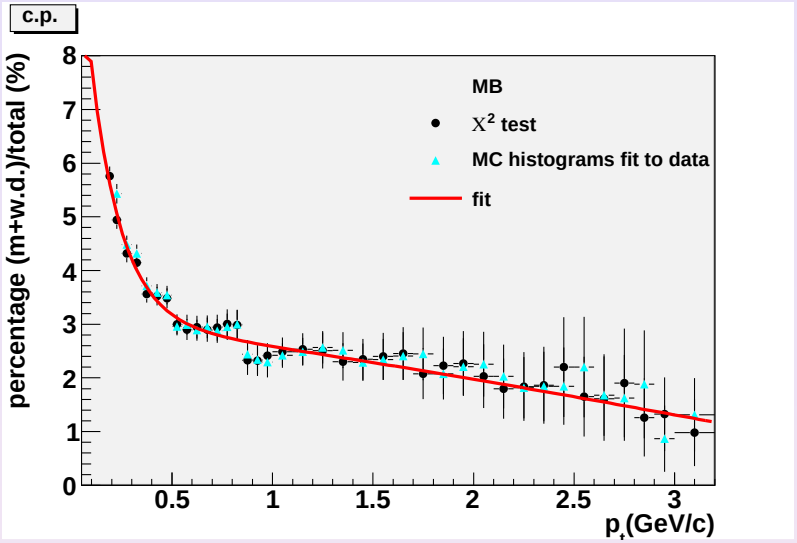


Contamination (%) - m, w.d. and total

p_t dependence - charged particles (MB)

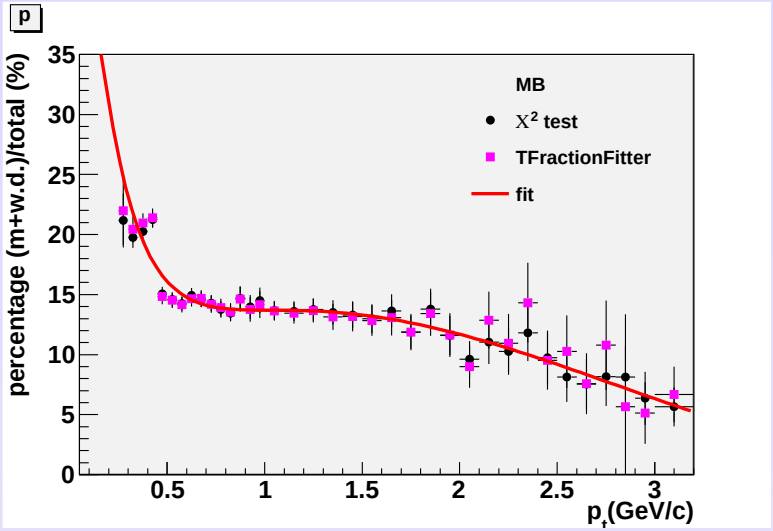


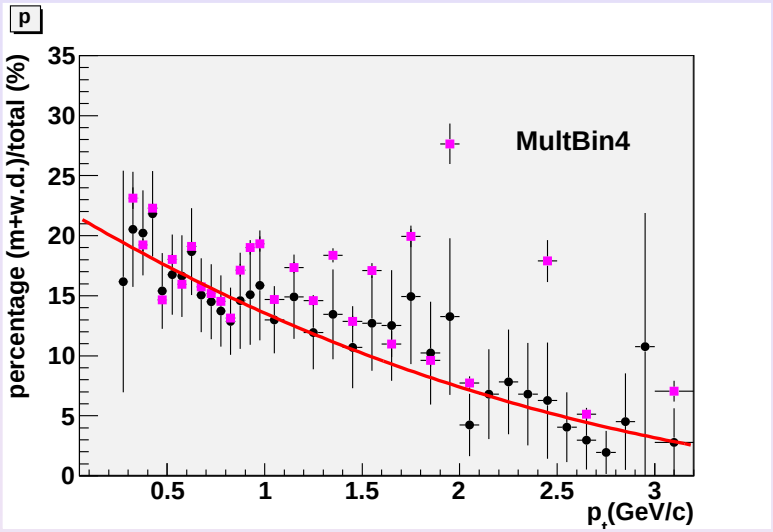




Outlook

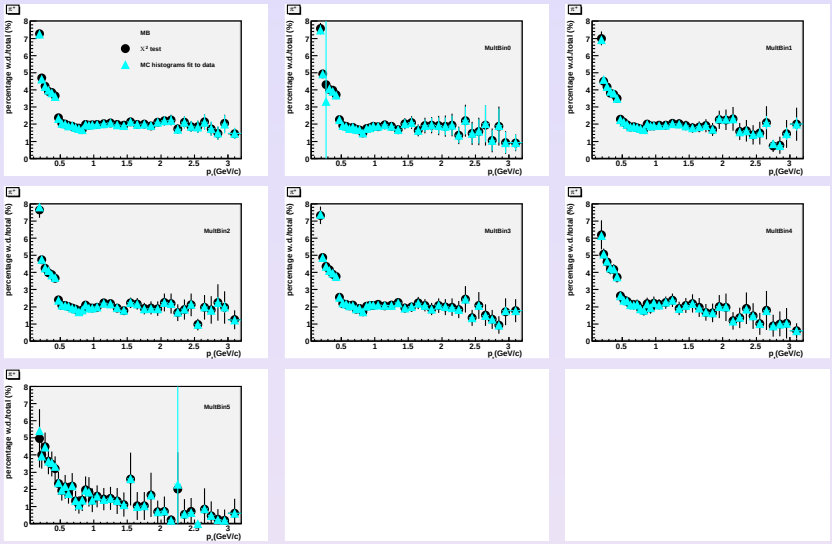
- Material and weak decay correction:
  - alternative procedure based on DCA distributions fit functions for all components (to be used for systematic errors estimates)
  - multiplicity dependence for charged particles
  - event shape dependence
- Quite advanced: model independent efficiency correction as a function of multiplicity
- Under investigation: PID based on Bayesian approach developed by Francesco
- Under investigation: to replace the global track multiplicity by the combined multiplicity of Ruben
- Global variables for selecting events close to azimuthal isotropy: Directivity, Fox-Wolfram moments, etc.
- High multiplicity trigger runs

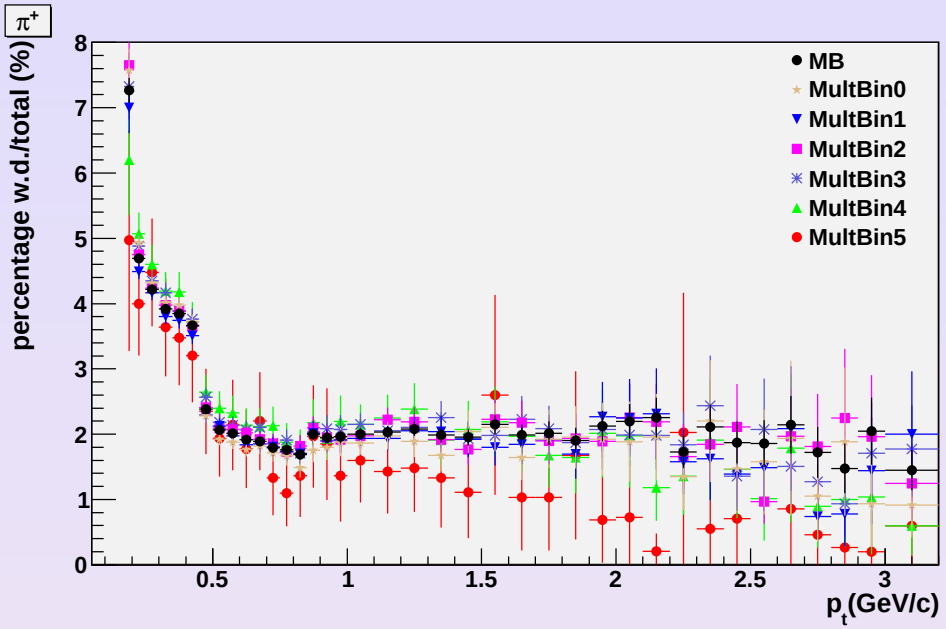

p
percentage (m+w.d.)/total (%)
MB
X² test
TFractionFitter
fit
p_t(GeV/c)


p
percentage (m+w.d.)/total (%)
MultBin4
p_t(GeV/c)

Contamination (%) - w.d.

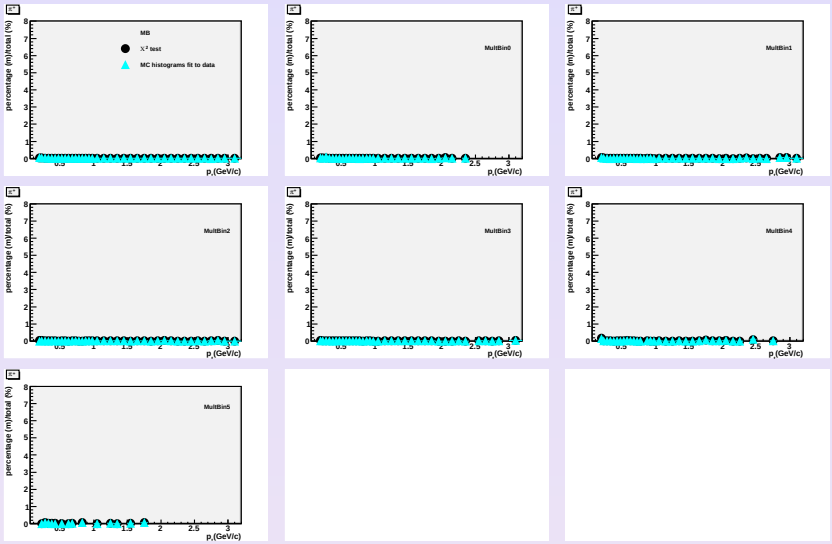
p_t dependence - pions

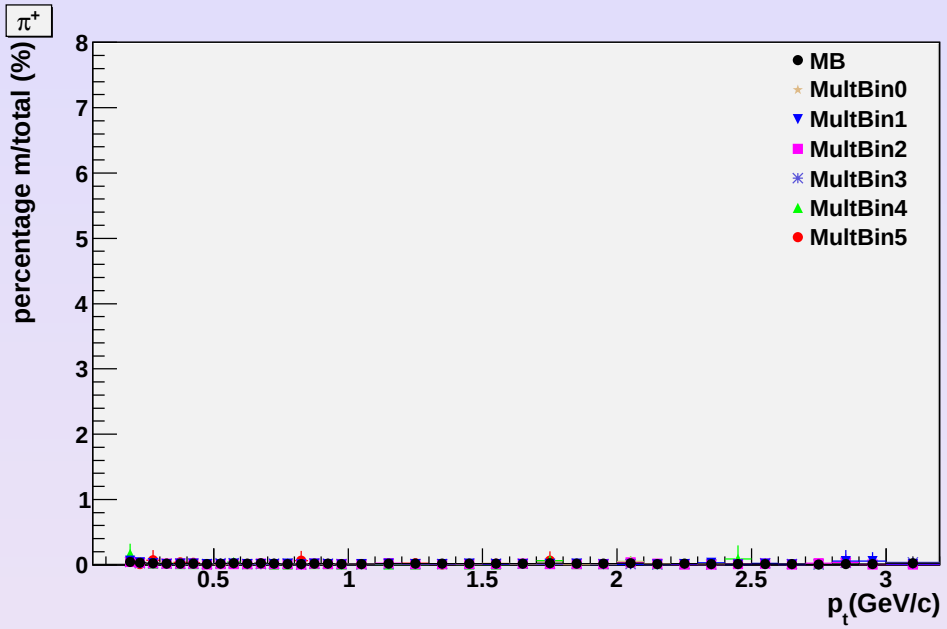




Contamination (%) - m

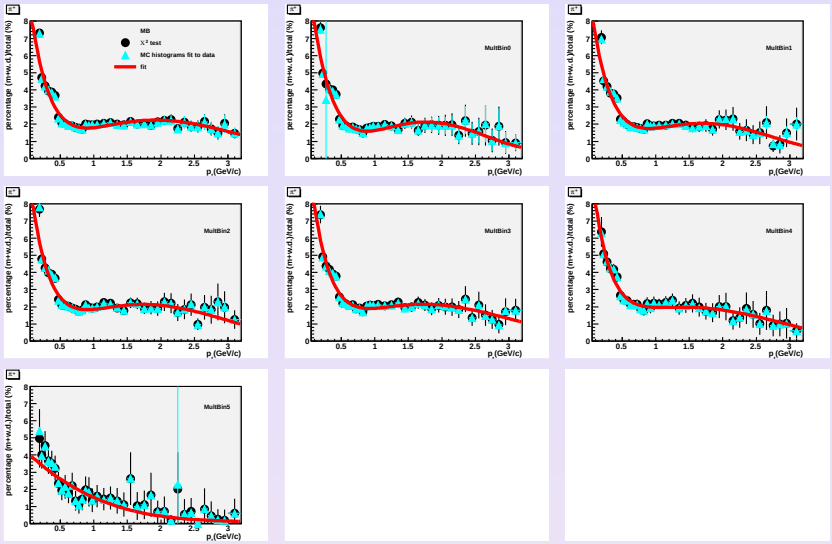
p_t dependence - pions

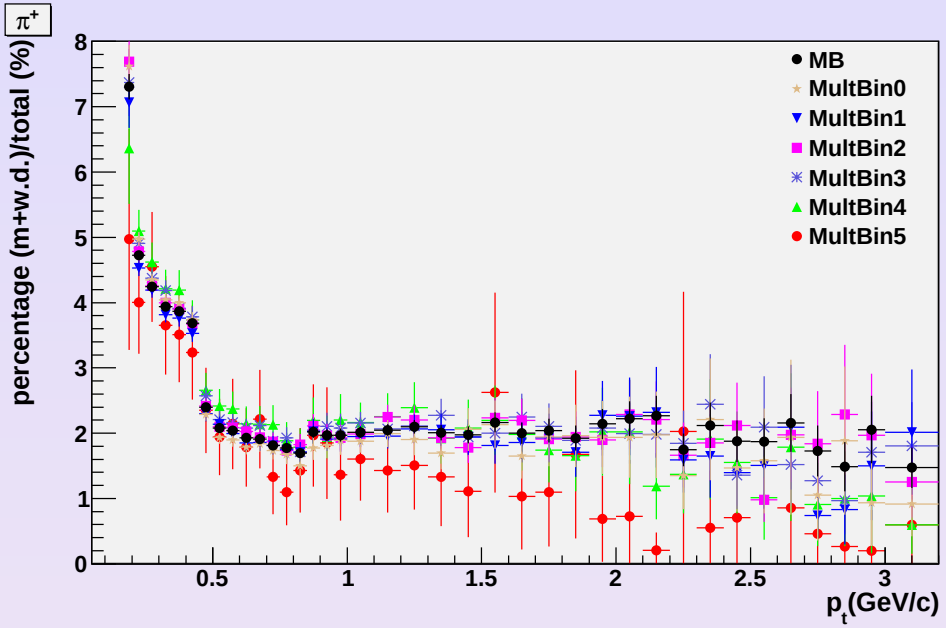




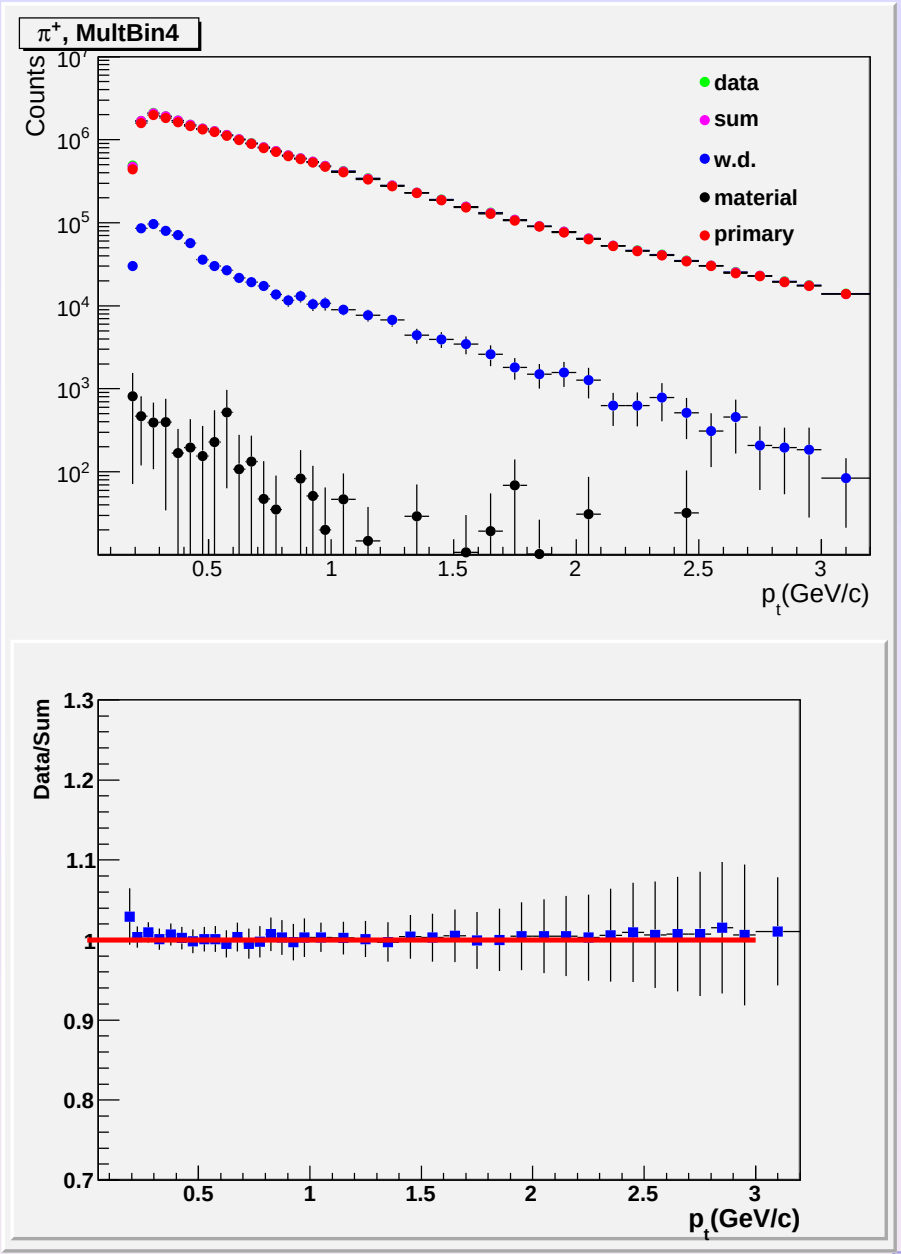
Contamination (%) - (m+w.d.)

p_t dependence - pions

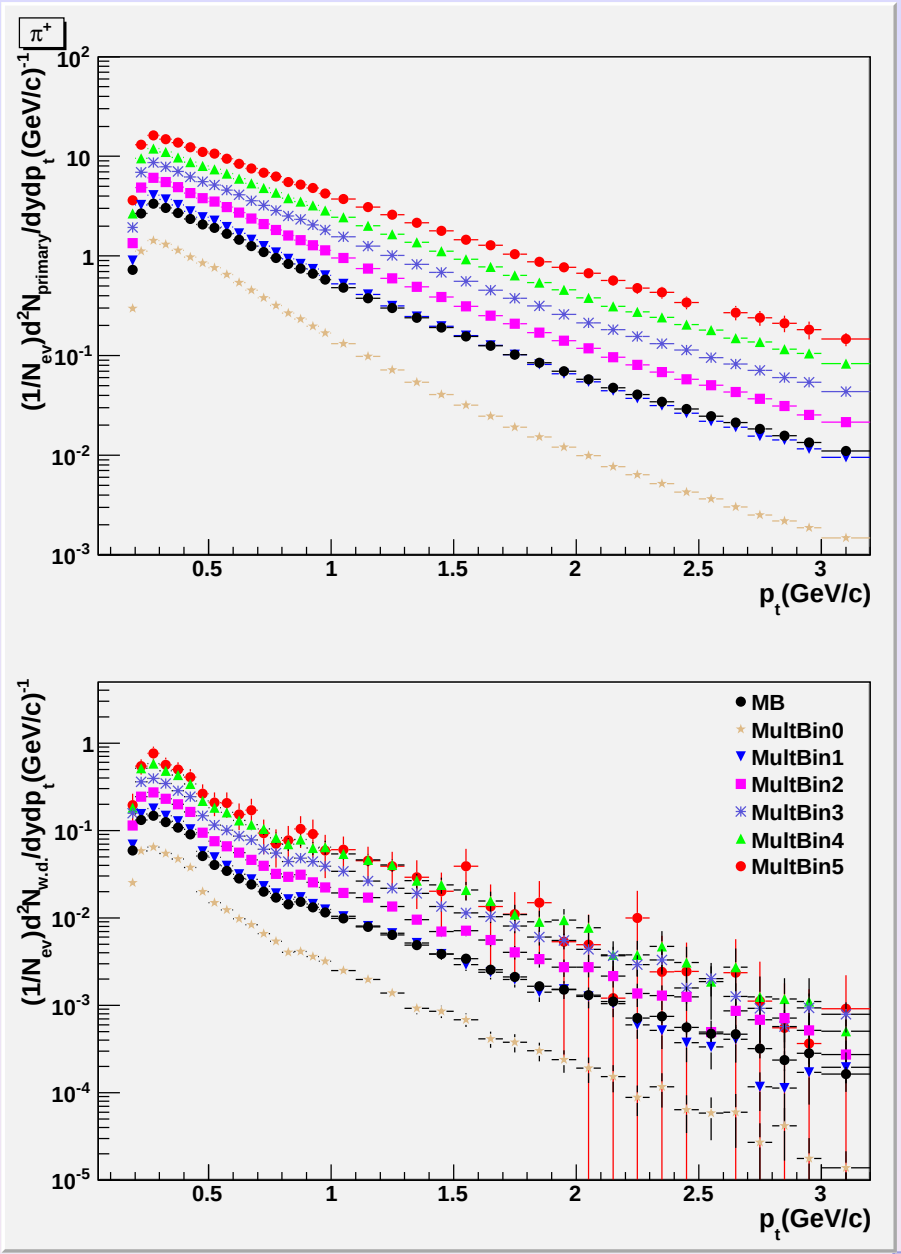




Raw p_t distributions - pions



Raw p_t distributions - pions



Contamination (%) - (m+w.d.)

p_t dependence - Kaons