
News from the offline and first look at the analysis train

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New developments in offline

- The current version of ROOT is 5.23.02, of aliroot: v4-16-Rev-07.
- The large-scale production is being validated right now, will start as soon as all major bugs are fixed.
- Analysis Train exercise is ongoing, which prompted several changes in AliFemto:
 - Inclusion of AliAnalysisTaskFemto in the library
 - Will replace “runBatch.C” macro with the official template AddAnalysisTask
 - All analysis will need to run on AOD

AliFemto news

- New monitor classes were added to study the PID efficiencies (request from Ludmila)
- The AliFemto Train macro has been created, included π^+ , π^- and K^+ analysis.
 - Results are available on alien
 - Problems with TPC χ^2 calculation were found
- The macro train can be used as a template for anybody who wants to start his analysis.

New features in Analysis Framework

- Large discussion on the Event mixing. Femto one of the most demanding packages. Need several binning directions: z-vertex, multiplicity; in PbPb reaction plane. Also need memory consuming histograms: At least 3 3D histos per correlation function (x no. of kT bins; x no. of reaction plane bins).
- Possible solutions: use correlation function with binning directly in spherical harmonics, use EventPool mechanism from the Analysis Framework

Analysis Train for AliFemto

- EventPool will use the tag mechanism to divide the event sample into “bins” in the variables used by all groups: z-vertex and “centrality” (coarse centrality binning).
- Each job will run with events only from a single EventPool bin to reduce the amount of memory for event pool and output histograms
- Results will be automatically merged only within a single EventPool bin
- Cross-bin merging will be a post-process – NOT done by the Analysis Framework.

EventPool schematics

EventPool mechanism (before job submission)

Mixing bin 1,1

Mixing bin 1,2

Mixing bin 2,1

...

Mixing bin 1,N

Event buffer

Analysis Train job for a single bin

User analysis

Analysis task 1

Analysis task 2

...

Analysis task N

User analysis 1

User analysis 2

...

User analysis N

Output for 1,1

Output for 1,1

Output for 1,1

Post-train merging

Output for 1,1

Output for 2,1

...

Output for N,1

Merged output

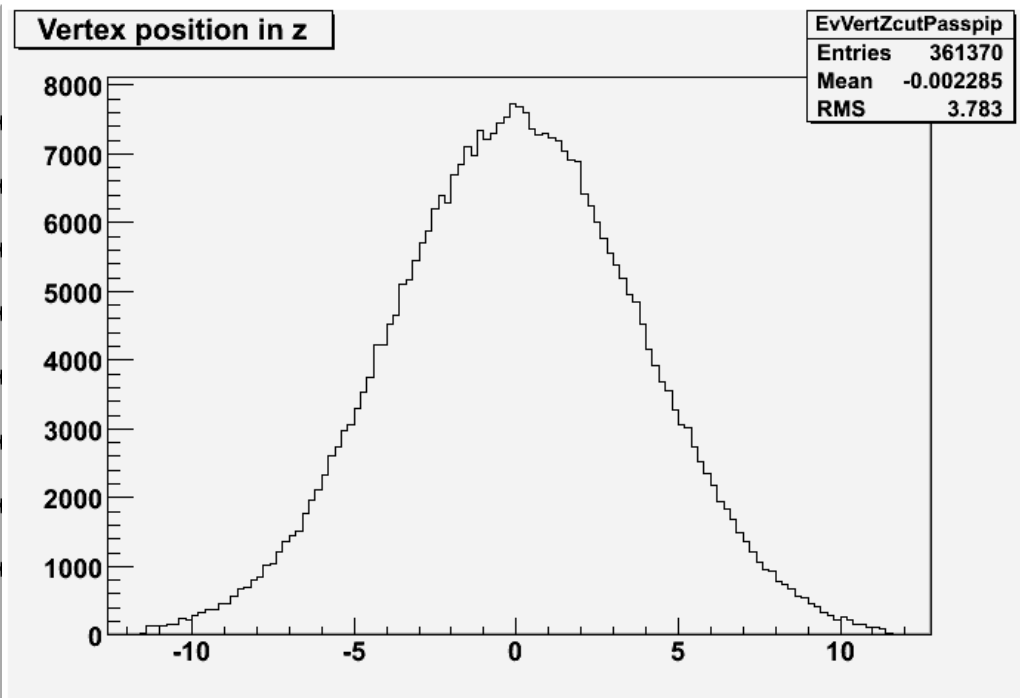
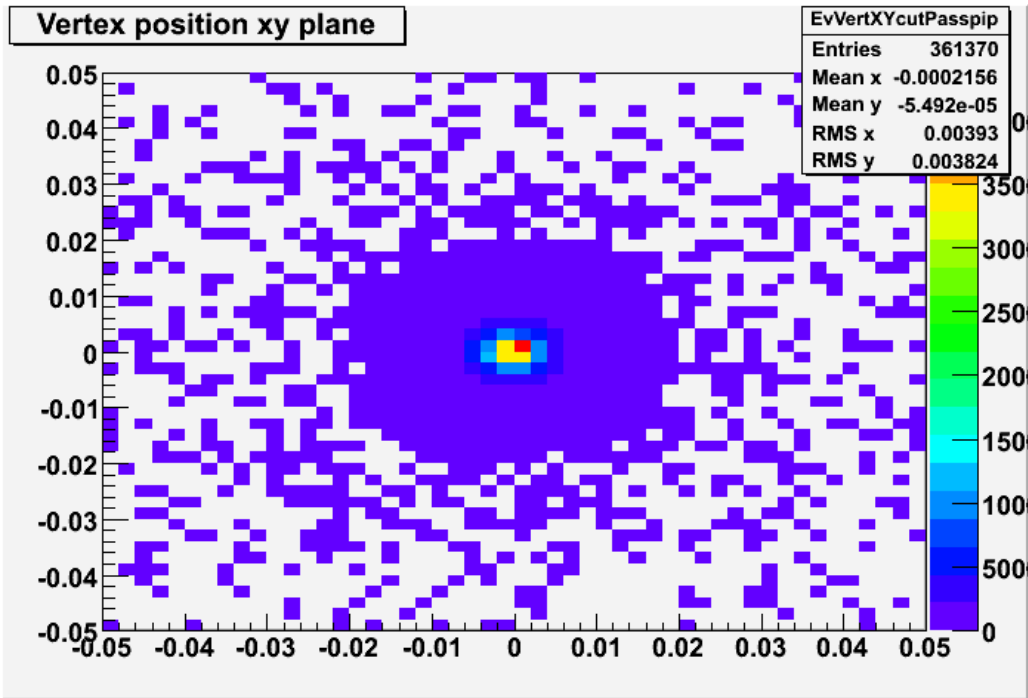
AliFemto main user classes

- **Correlation functions**
 - 1d q_{inv}
 - 3D cartesian coordinates
($q_{\text{out}}, q_{\text{side}}, q_{\text{long}}$)
 - 3D spherical coordinates
($q, \cos(\theta), \varphi$)
 - Binned directly in spherical harmonics
- **Model correlation functions**
 - All above with weights
- **Cut-study classes**
 - Event characteristics
(vertex position, multiplicity)
 - Single particle monitors
($y, p_T, \eta, \varphi, \text{PID}$)
 - 1D q_{inv} vs. track χ^2 , DCA, SigmaToVertex
 - Two-particle efficiencies
(Sharity, Qulaity, TPC entrance separation)

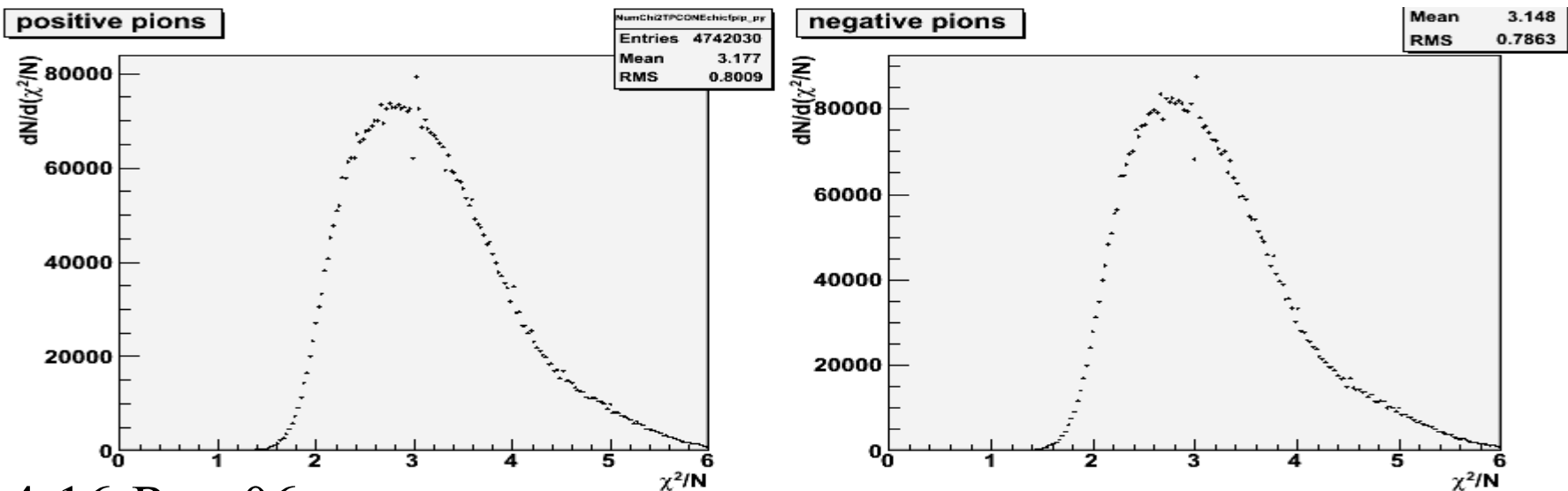
PDC09a4 production

- Large scale production tests are ongoing
 - First run AliRoot v4-16-Rev-06, runs 8005x – many problems were found, production obsolete
 - AliRoot v4-16-Rev-07, runs 801xx – around 4M events available, still problems were found, but data is usable with some modifications
 - AliRoot v4-16-Rev-07 – will be started this week, contains fixes to problems found in the last three weeks.

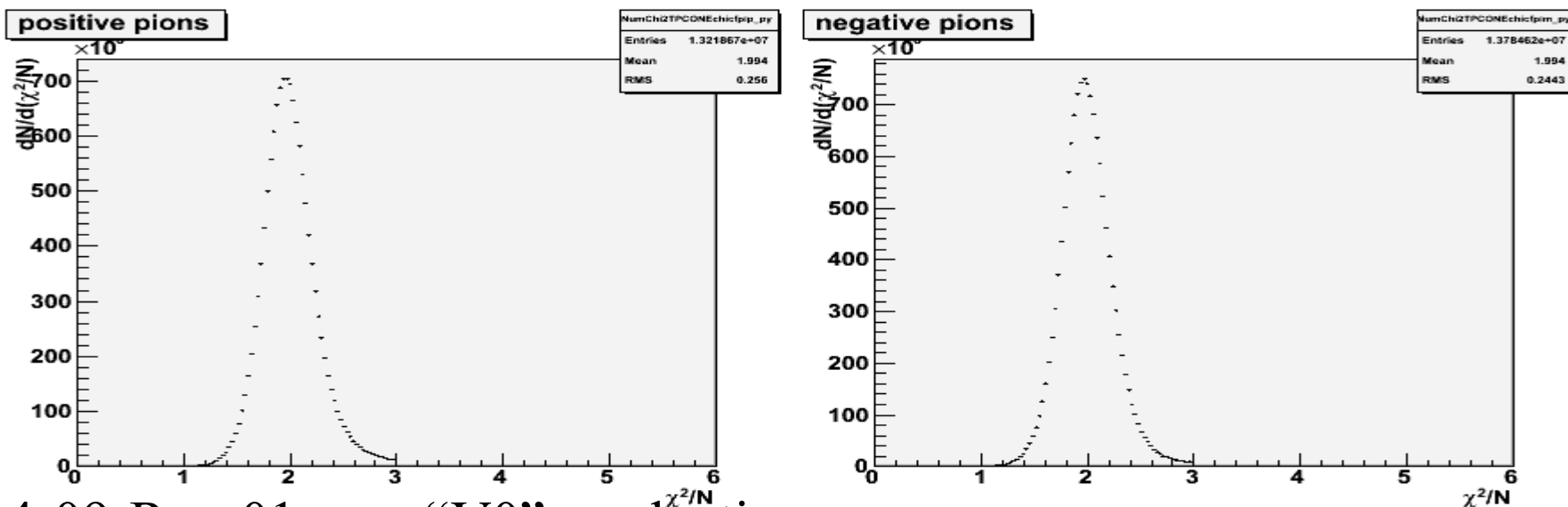
Vertex position



TPC chi2/Ncls per track



v4-16-Rev-06

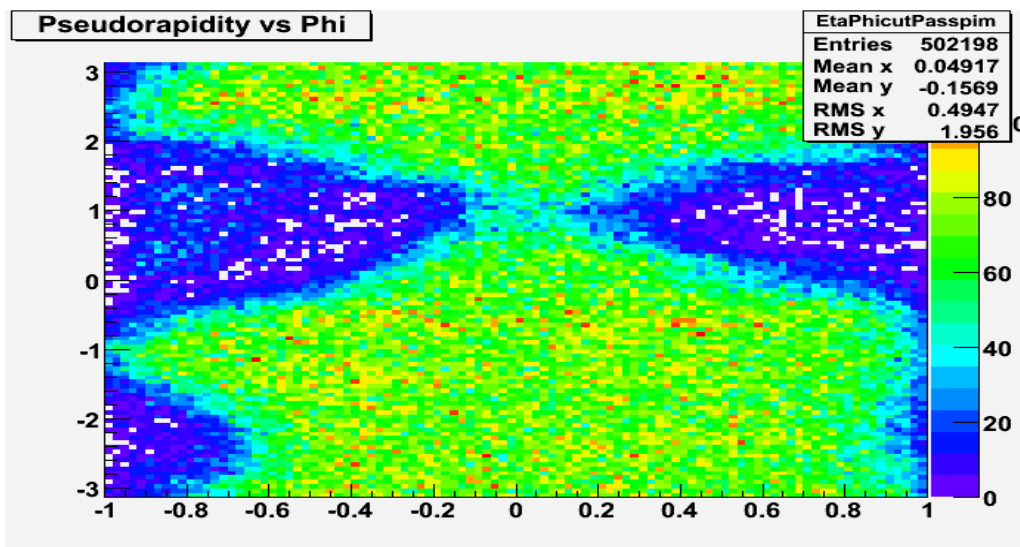
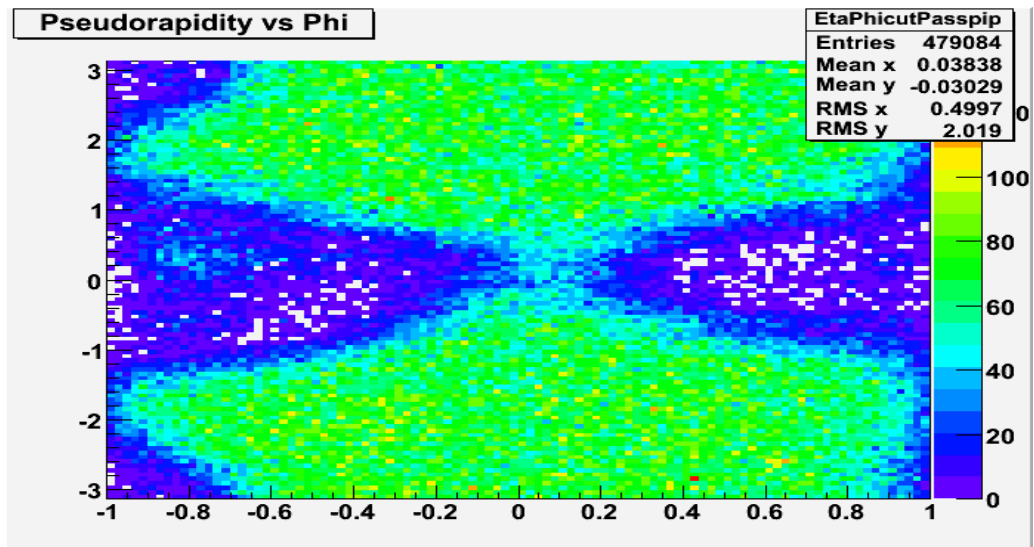


v4-09-Rev-01 – pp “V0” production

Eta vs Phi with cut $\chi^2/N_{cls} < 3$

positive pions

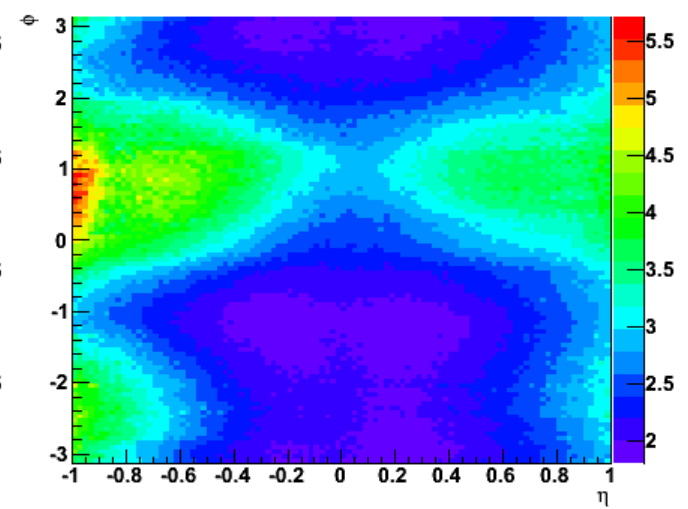
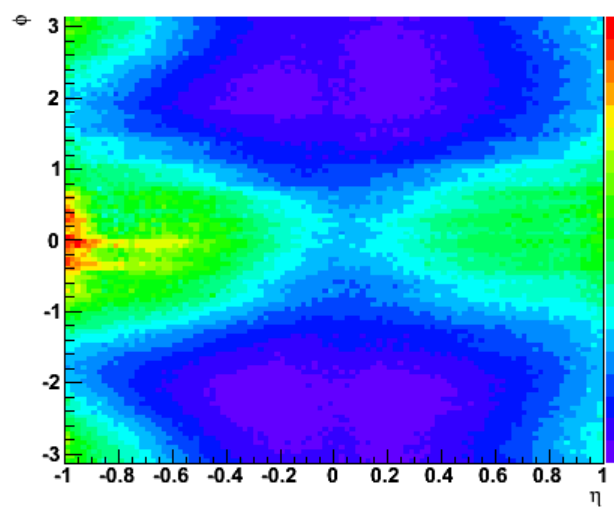
negative pions



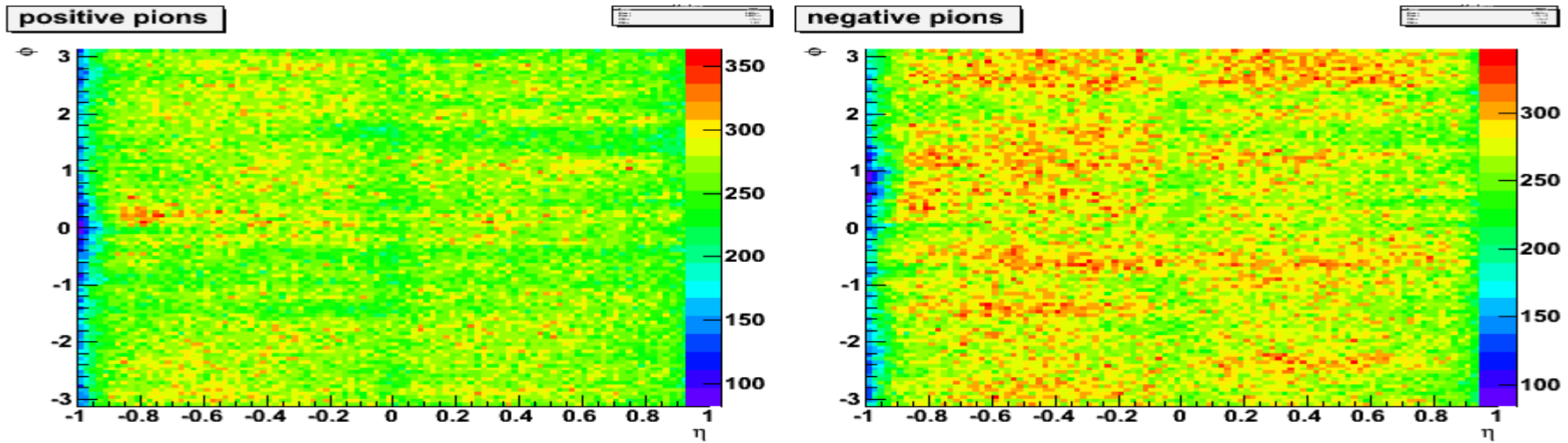
Average
 χ^2/N_{cls}
In TPC

positive pions

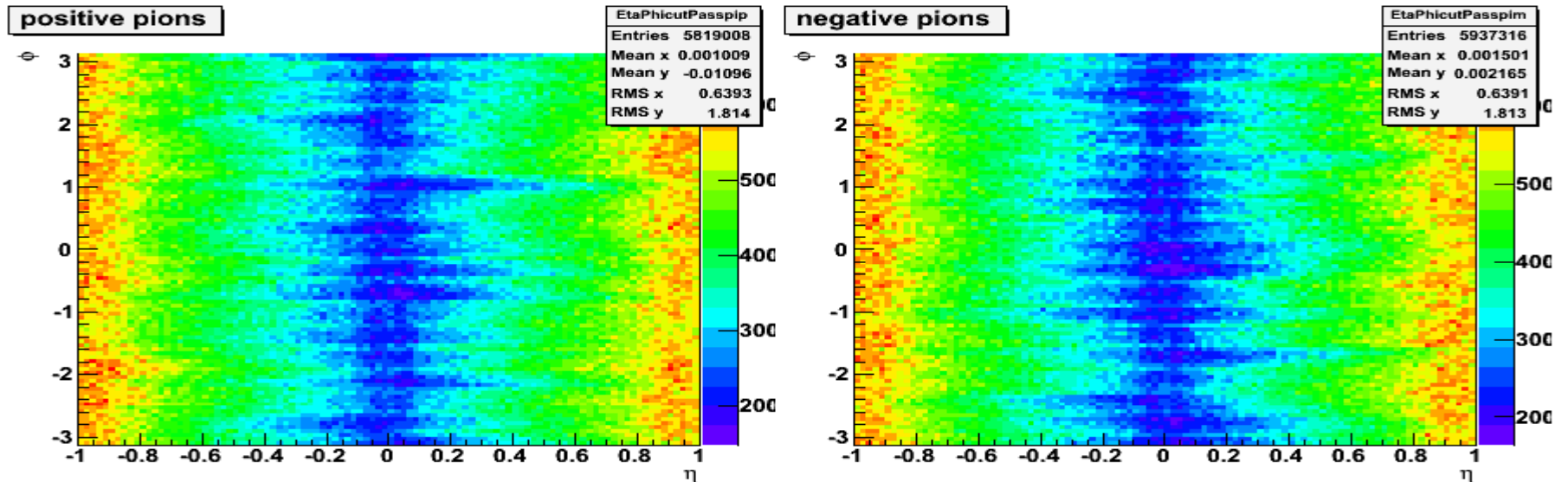
negative pions



No chi2/Ncls cut



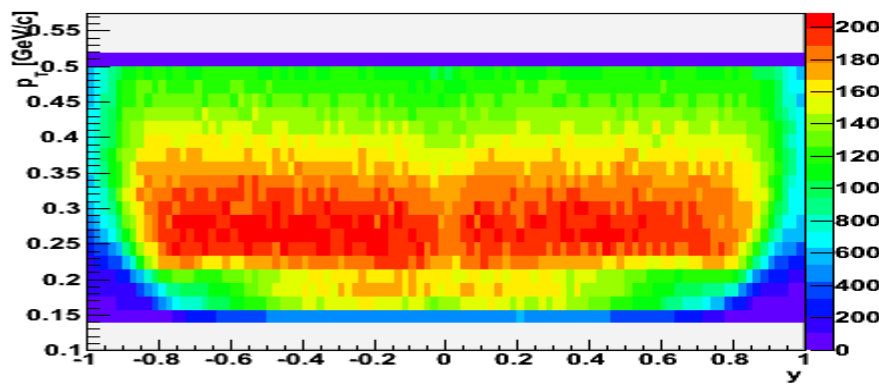
v4-16-Rev-06



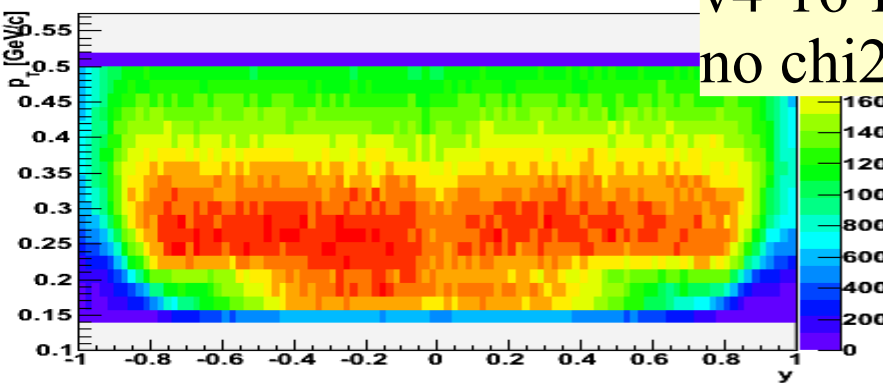
v4-09-Rev-01 – pp “V0” production

Eta vs Pt

positive pions

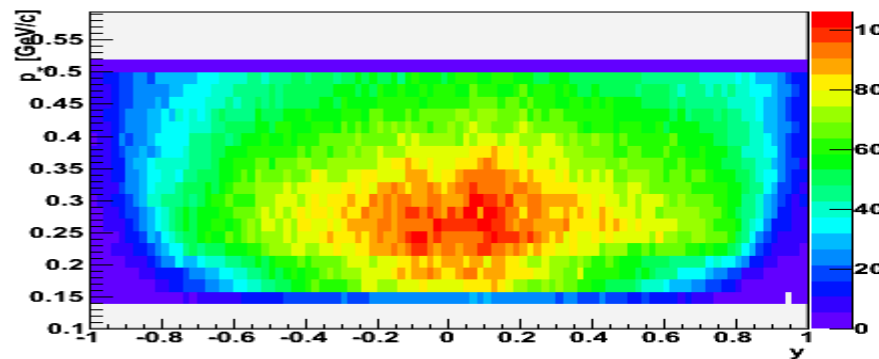


negative pions

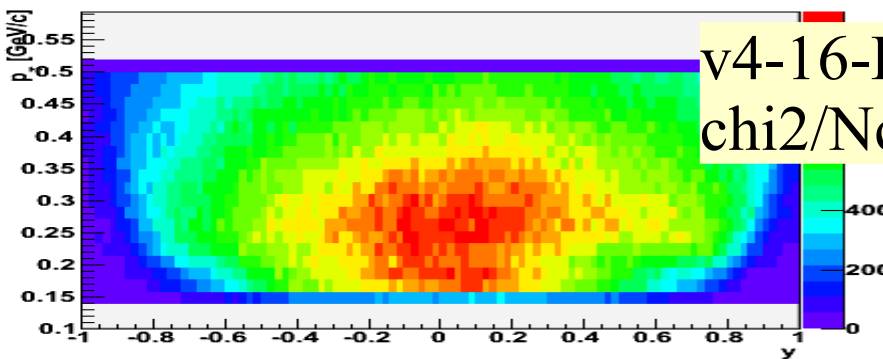


v4-16-Rev-06
no chi2 cut

positive pions

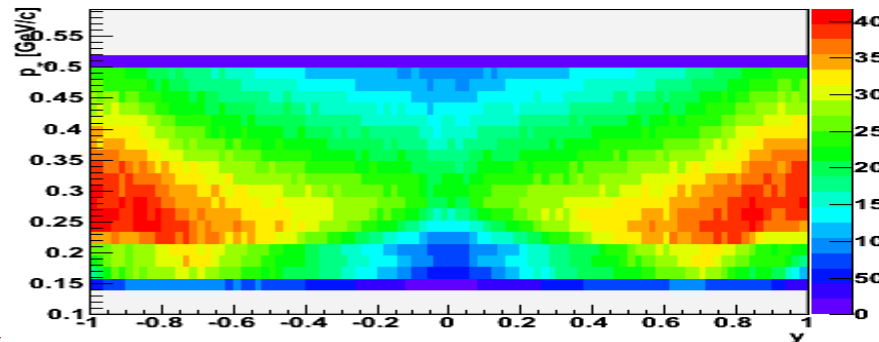


negative pions

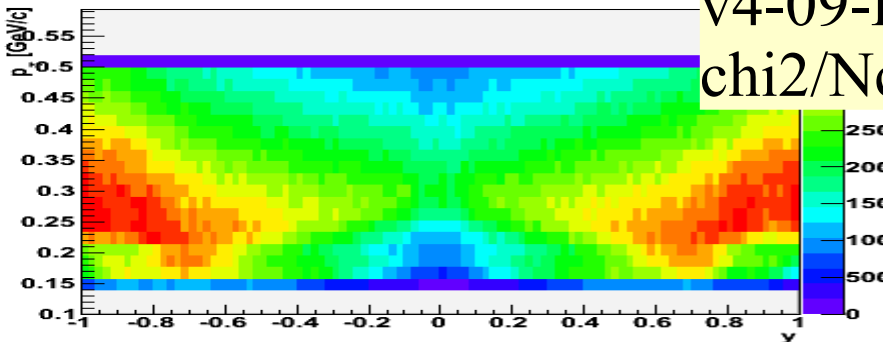


v4-16-Rev-06
 $\chi^2/N_{cls} < 3$

positive pions



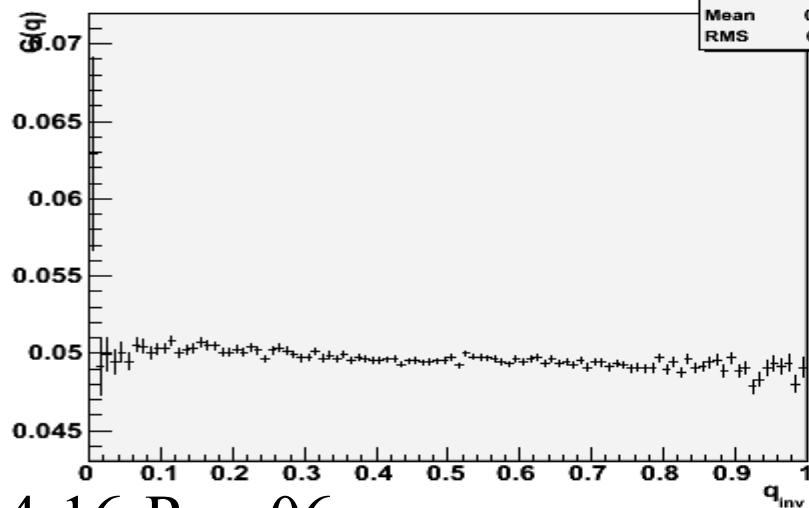
negative pions



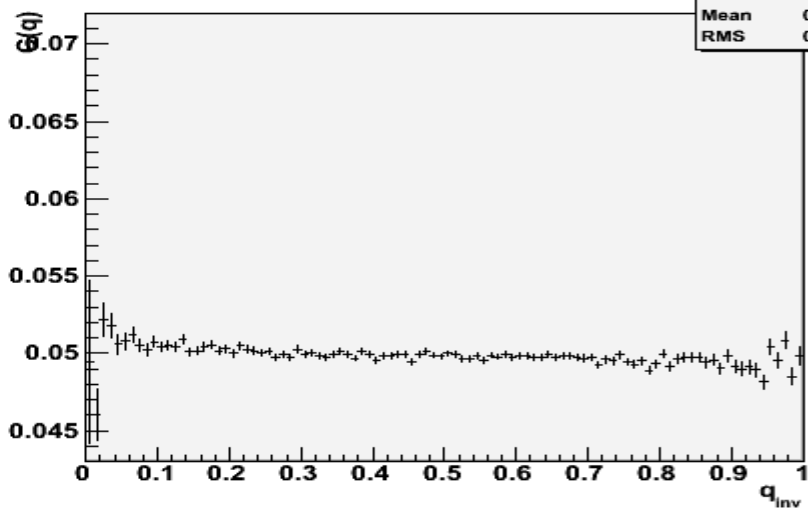
v4-09-Rev-01
 $\chi^2/N_{cls} < 3$

Pion correlation function

positive pions

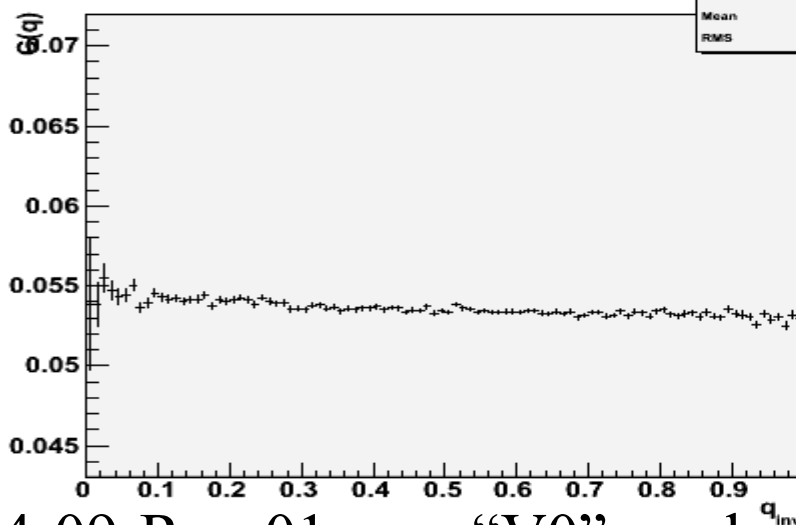


negative pions

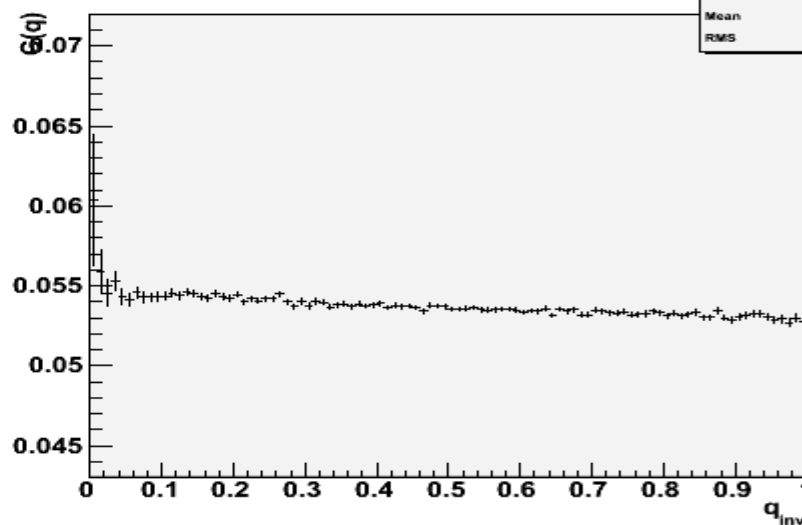


v4-16-Rev-06

positive pions



negative pions



v4-09-Rev-01 – pp “V0” production