ITTF Post Review Summary Report

Jerome Lauret & Peter Seyboth

STAR Collaboration Meeting
MSU, August 2003

The answer is YES

June Review

Observations

- Impressive progress
- Adequate documentation, has proven to be a good design, integration of new sub-system demonstrated (Pixel / FTPC) i.e. flexible
- Fast, no memory leaks, maintainable
- No fundamental problems seen

Opened issues

- Optimization Phase needed (efficiencies lower than TPT across the board MC & Real Data)
- Concerns about ability of tracker to be tuned through available parameters

Target

Efficiency equal or higher than TPT for TPC alone, equal to TPT/EST

Sti should prove itself tunable to that level, no worst resolution

June Review

Key strength of ITTF

- Well documented, well written code in C++ = Maintainable
- Easy integration of new sub-system (FTPC, future like Pixel)
- Open new avenues (integrated SVT, SSD, … in tracking)

Recommendation to management (pending success)

- old tracker should be dropped by the end of 2003, Sti integrated, fully tested (d+Au rather than MDC) and deployed, abandon any support of the old tracking codes and infrastructure by the end of the year
- Claude suggested to remain the Sti leader until end of 2004
- Finds maintenance personnel on the level of 0.5-1 FTE, preferably at BNL & institution responsibility
- Management + Council : express unconditional support for STI if the optimization leads to the desired results

People/Logistics

Post Review Committee

- Peter Seyboth (Chair), Helen Caines, Yuri Fisyak, Iwona Sakrejda, Jamie Dunlop, Jérôme Lauret, Jim Thomas

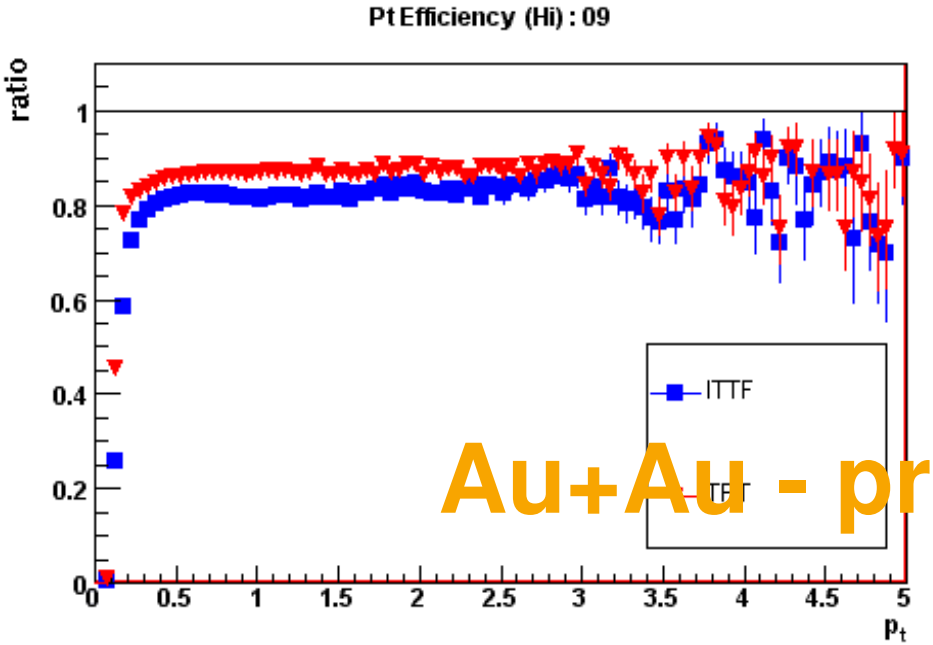
ITTF team & participant

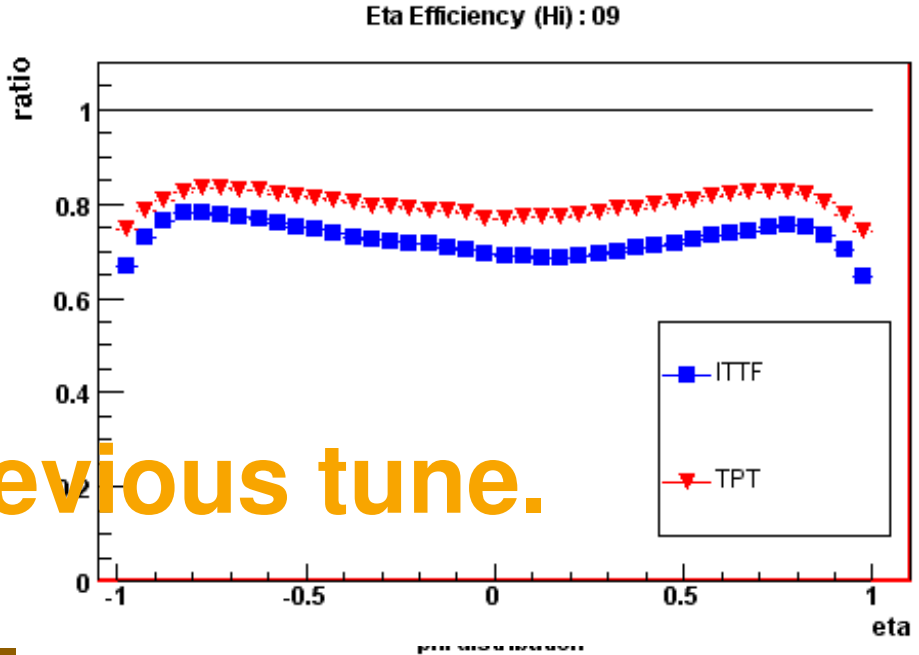
- Lee Barnby, Manuel Calderon, Zbigniew Chajecki, Maria Mora Corral, Mike Miller, Camelia Mironov, Ben Norman, Claude Pruneau, Andrew Rose

New people / new efforts :

- Bum Choi, Jun Takahashi (SVT)
- Kai Schweda (Pixel)
- Herb Ward (TPC / SVT residuals)
- Lee Barnby (Vertex, Chain integration, …)
- …

Last review Production

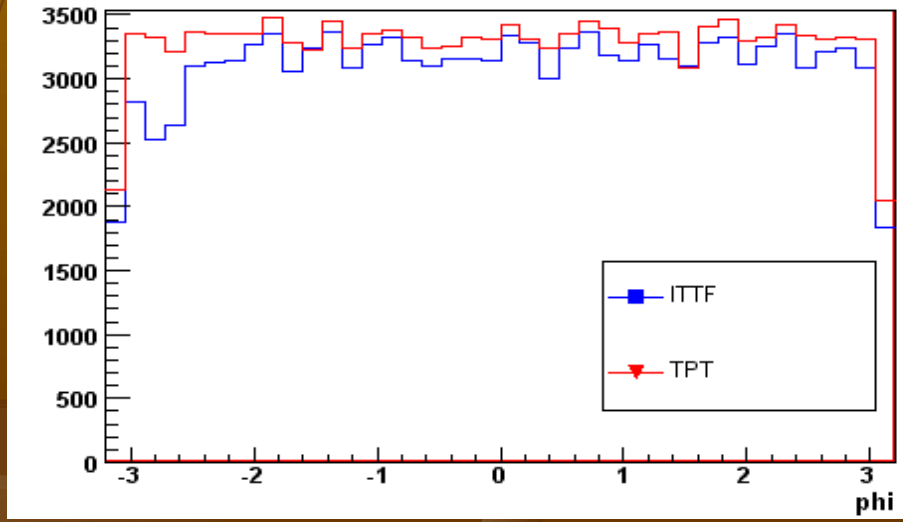




Au+Au - previous tune.

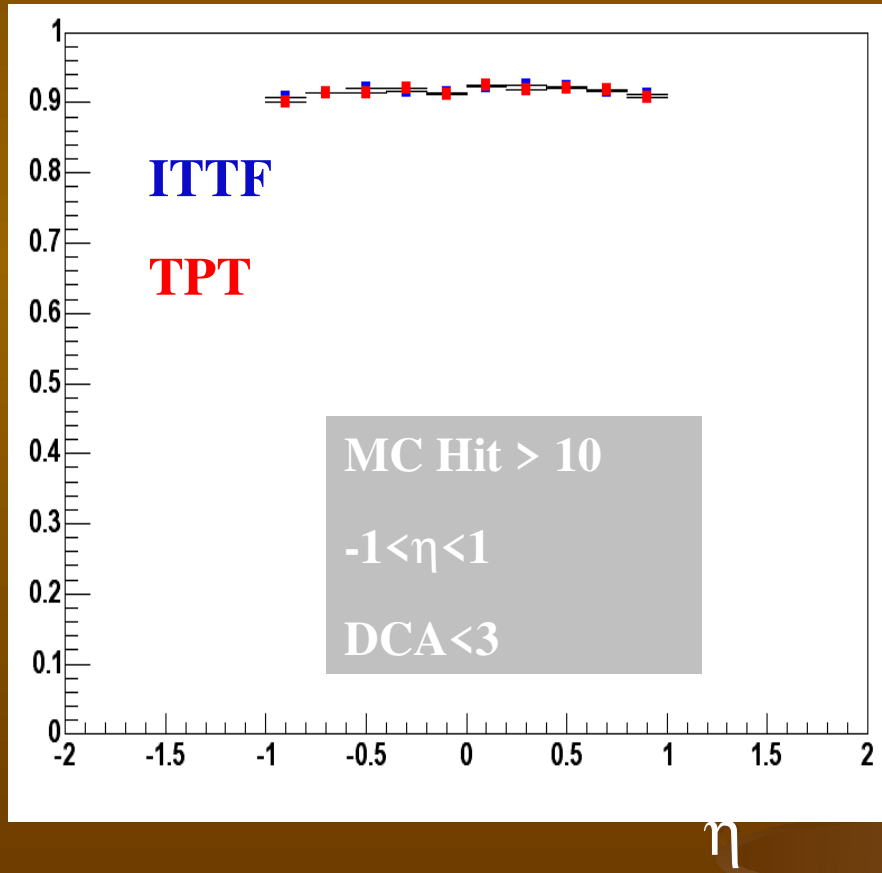
N hits>10

$-1 < \eta < 1$

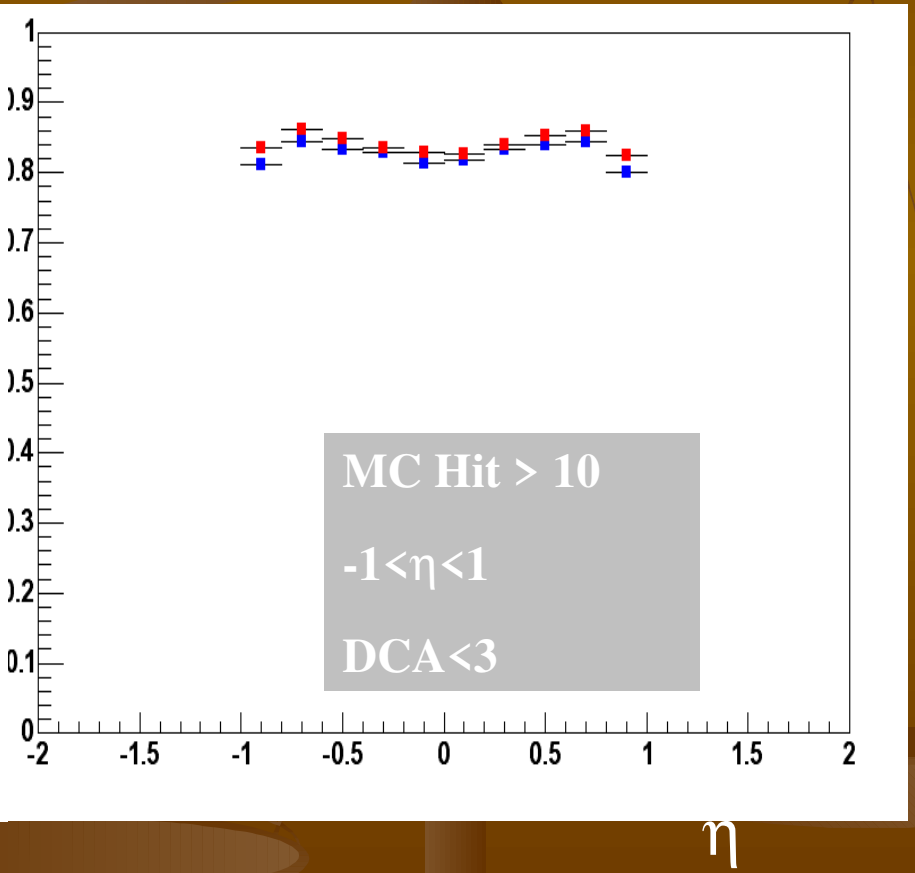


New Tune - Efficiency vs. Eta

Low Multiplicity



High Multiplicity



New Tune – Efficiencies vs. Φ

Low Multiplicity

ITTF

TPT

MC Hit > 20

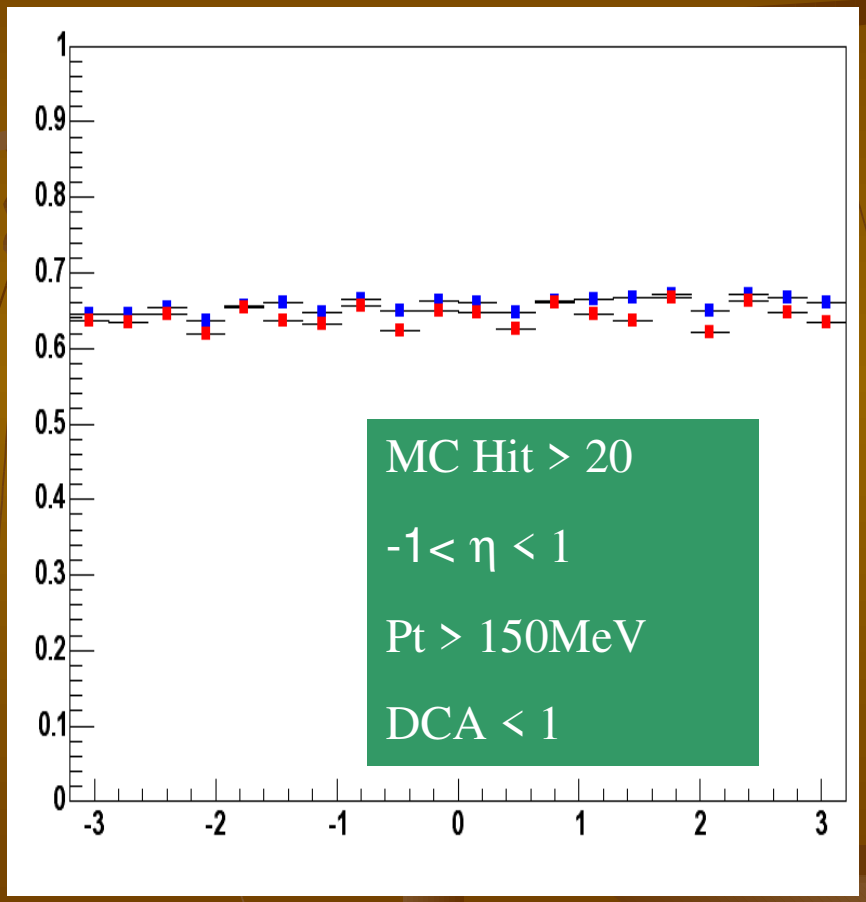
-1< η < 1

Pt > 150MeV

DCA < 1

Φ (radians)

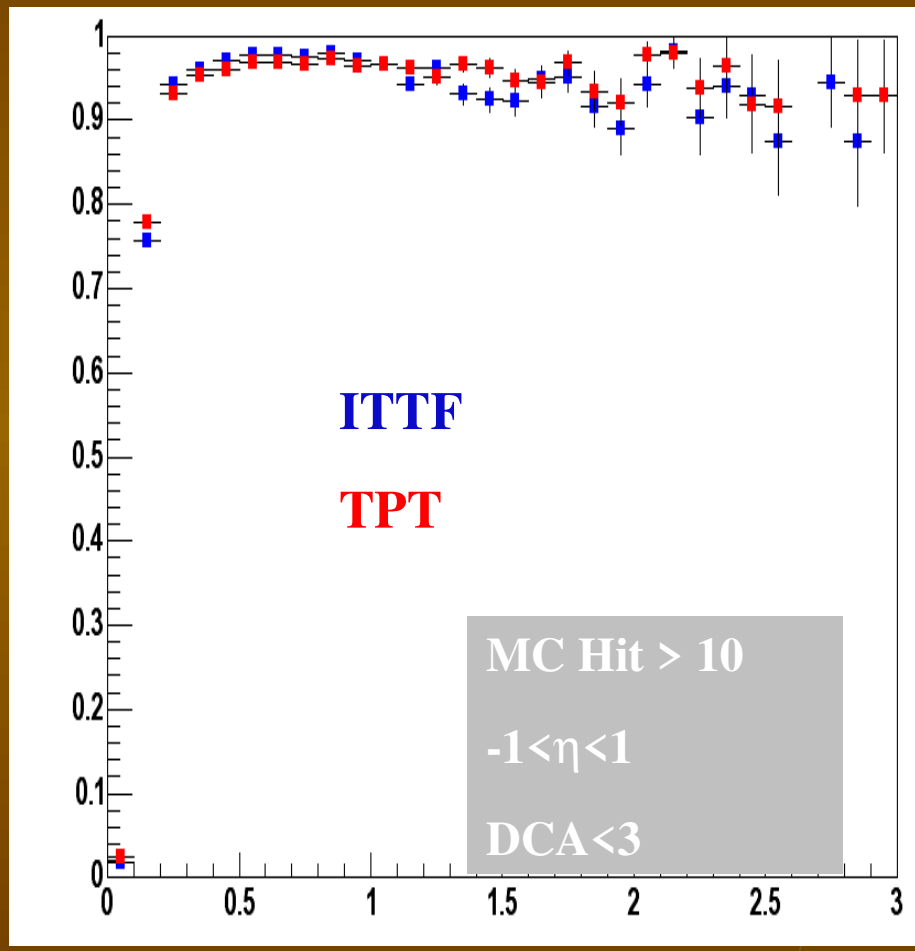
High Multiplicity



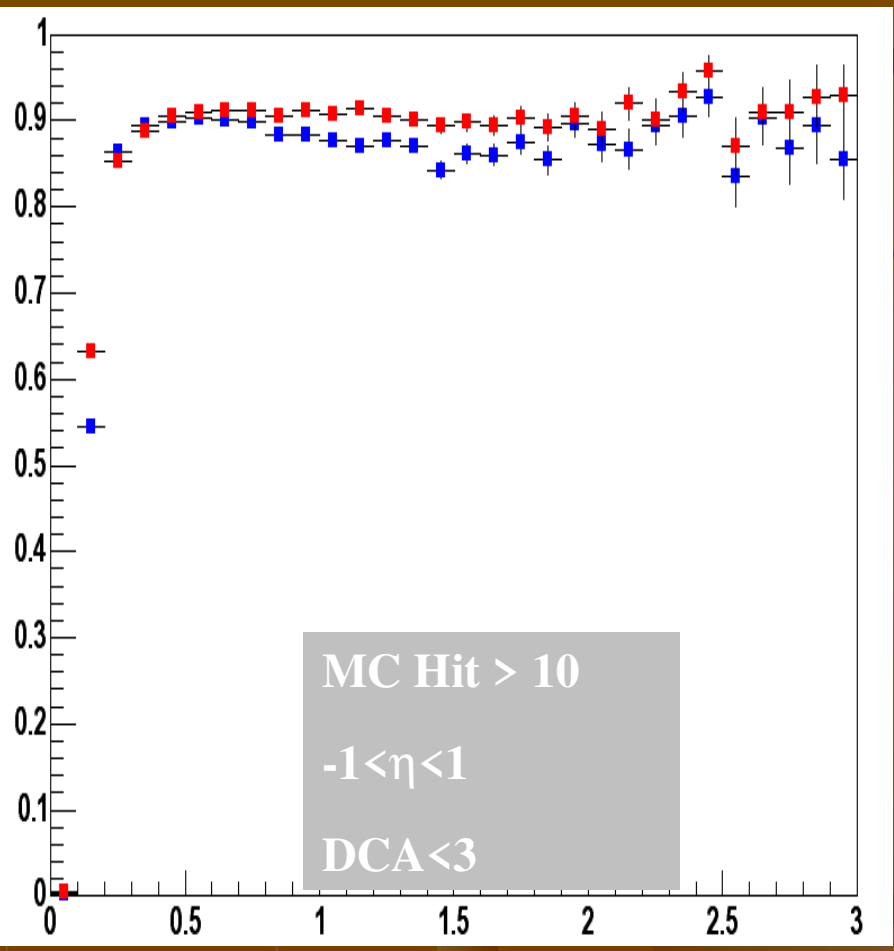
Φ (radians)

New Tune - Pt Efficiencies

Low Multiplicity



High Multiplicity



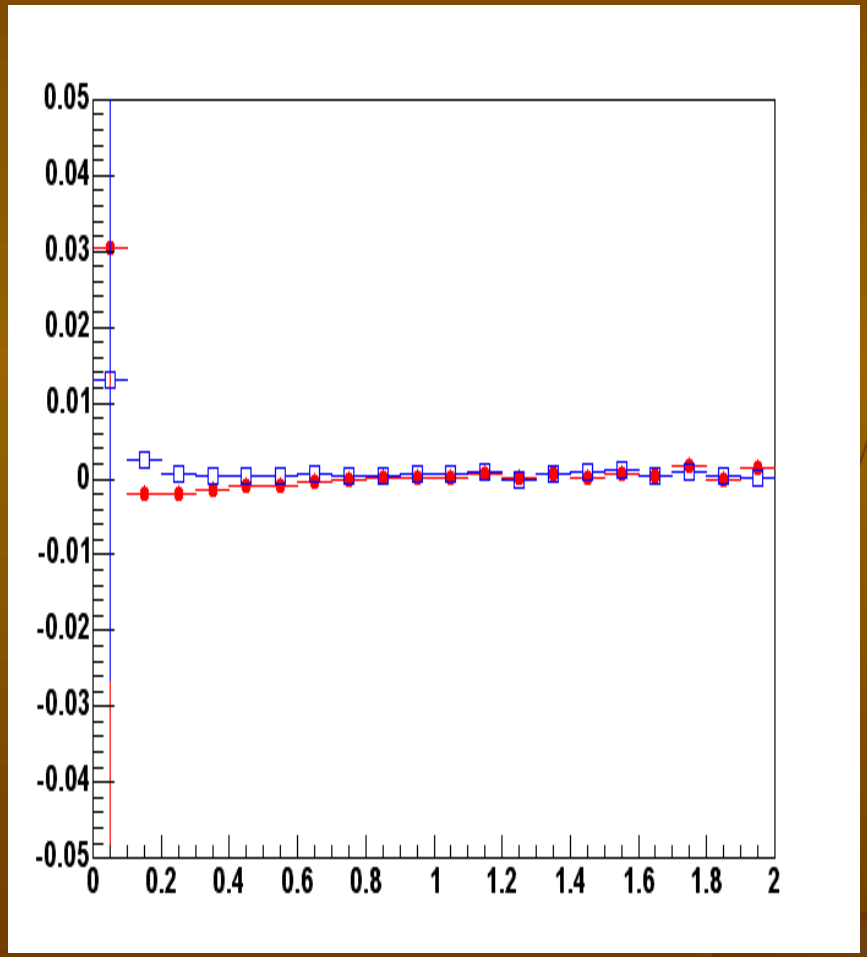
Comparable efficiencies TPT/Sti

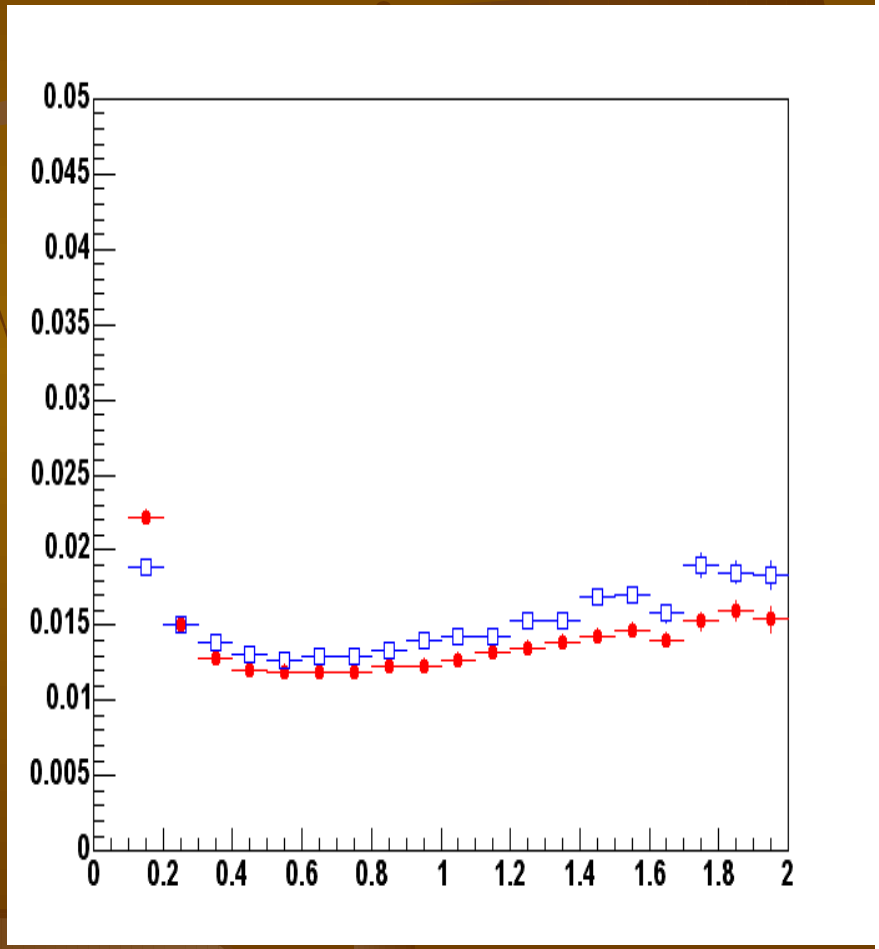
Pt reconstruction Bias & Resolution

Primary Pi+

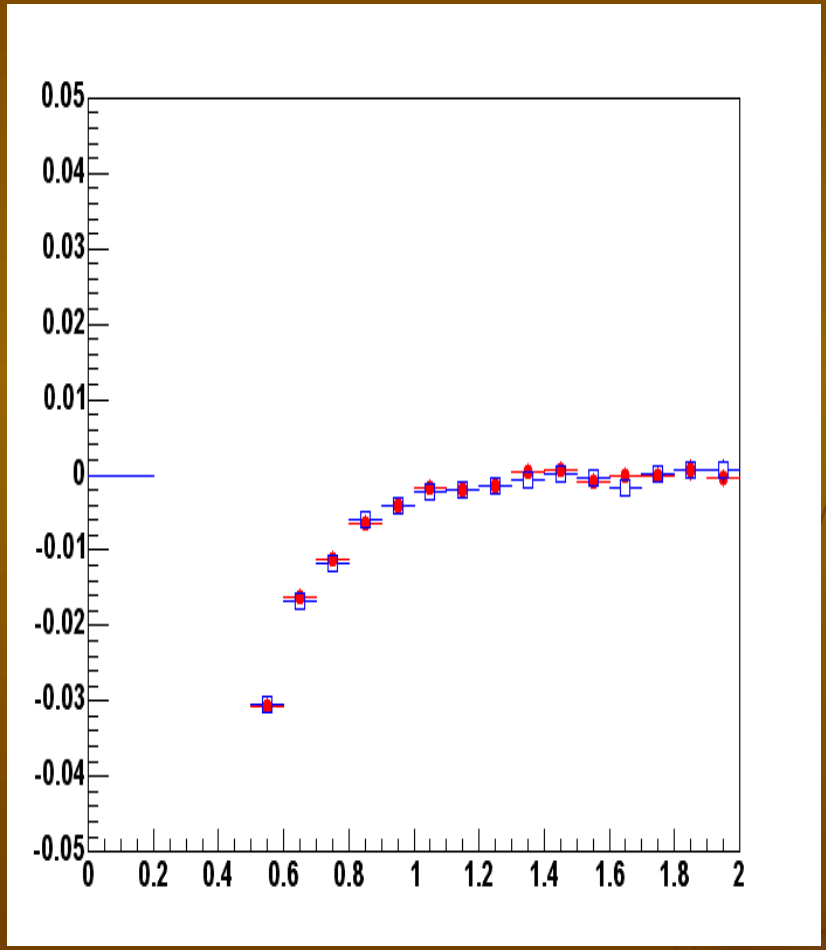
ITTF RED

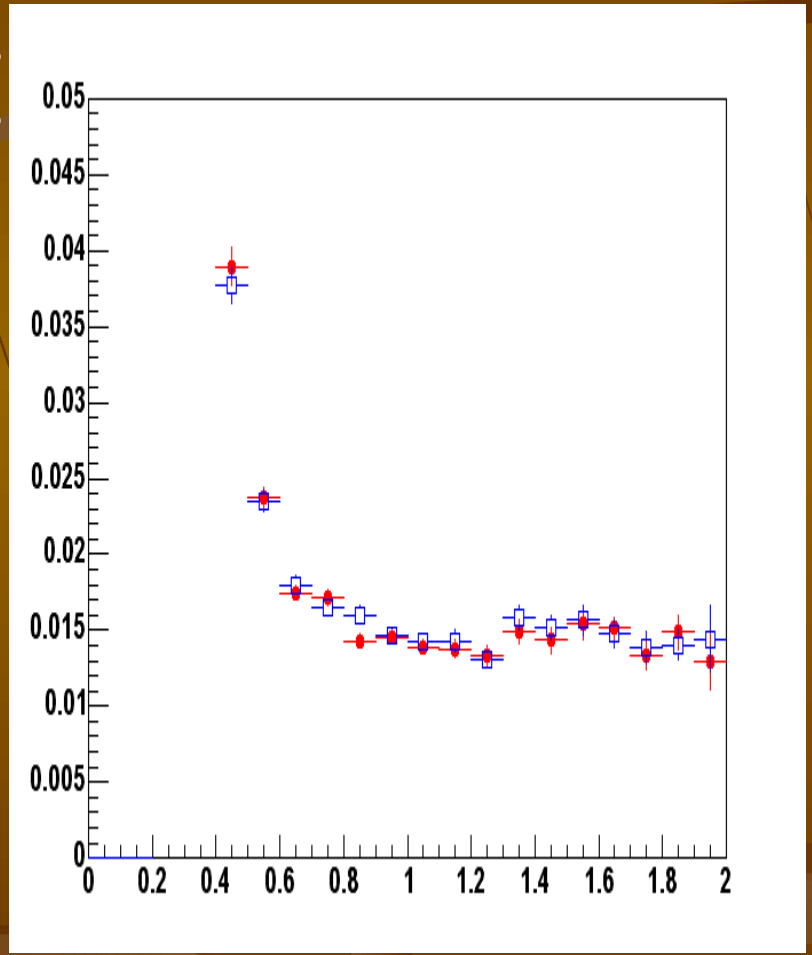
TPT BLUE



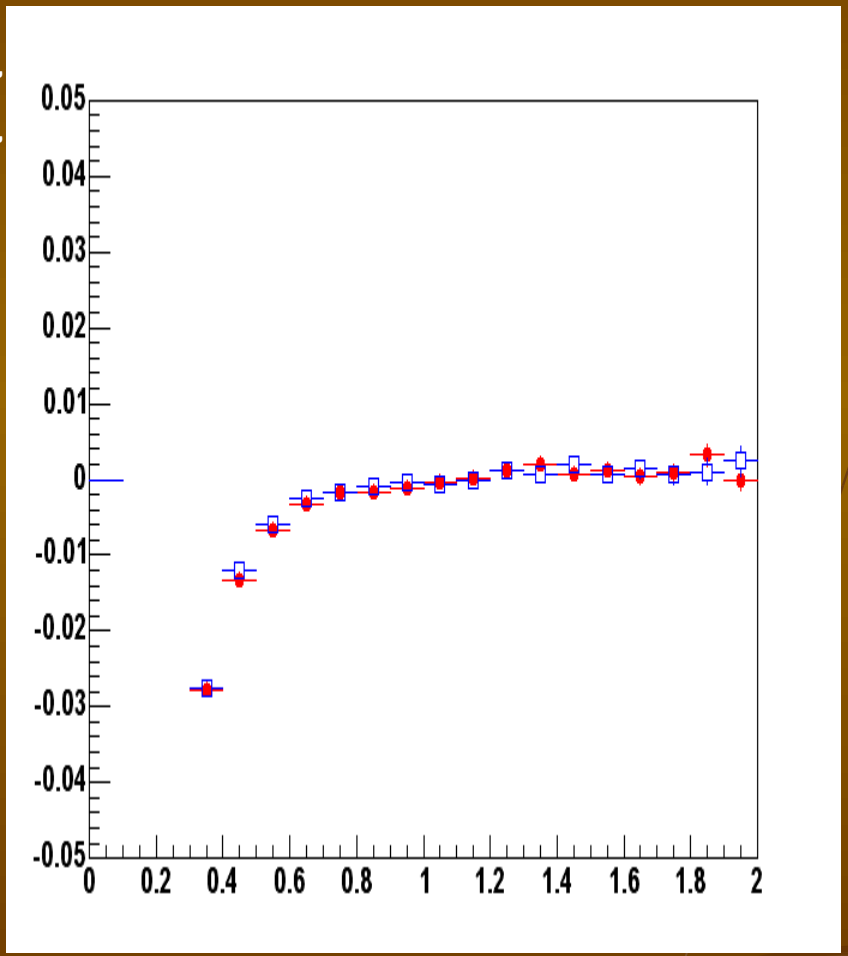


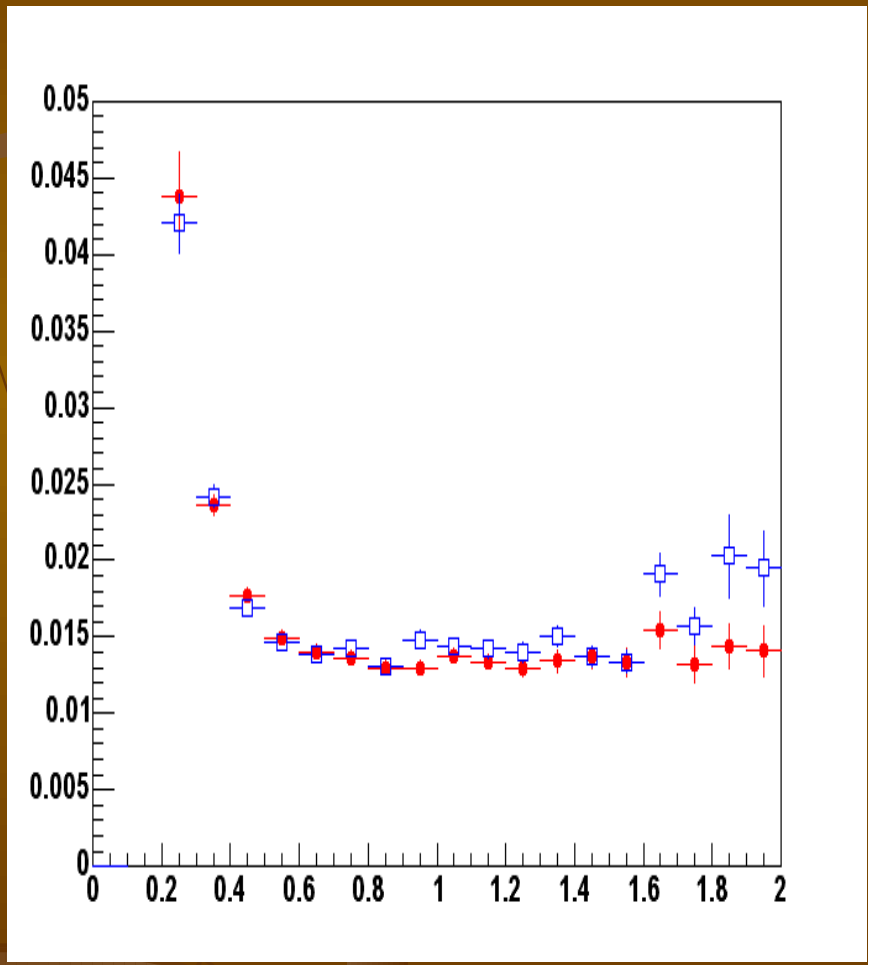
Primary Proton
ITTF RED
TPT BLUE





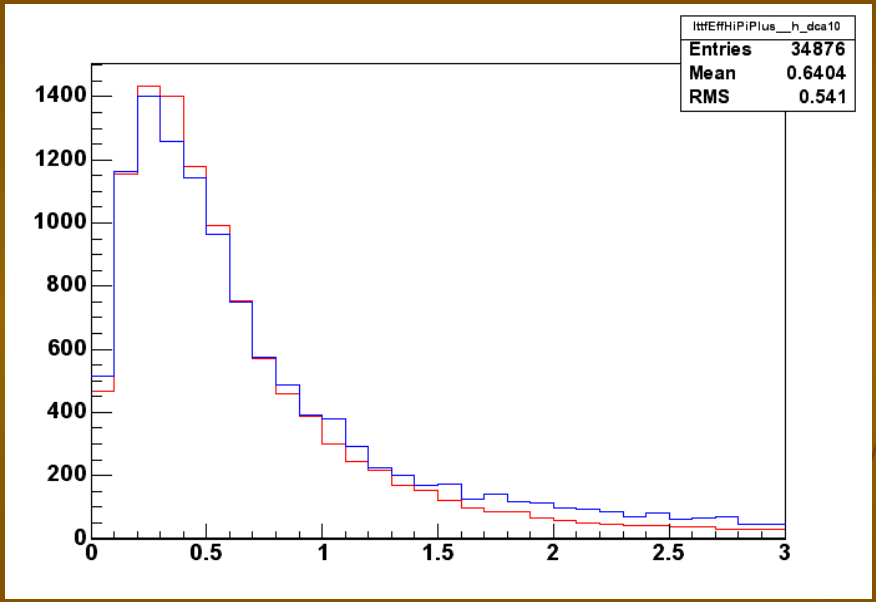
Primary Kaon +
ITTF RED
TPT BLUE





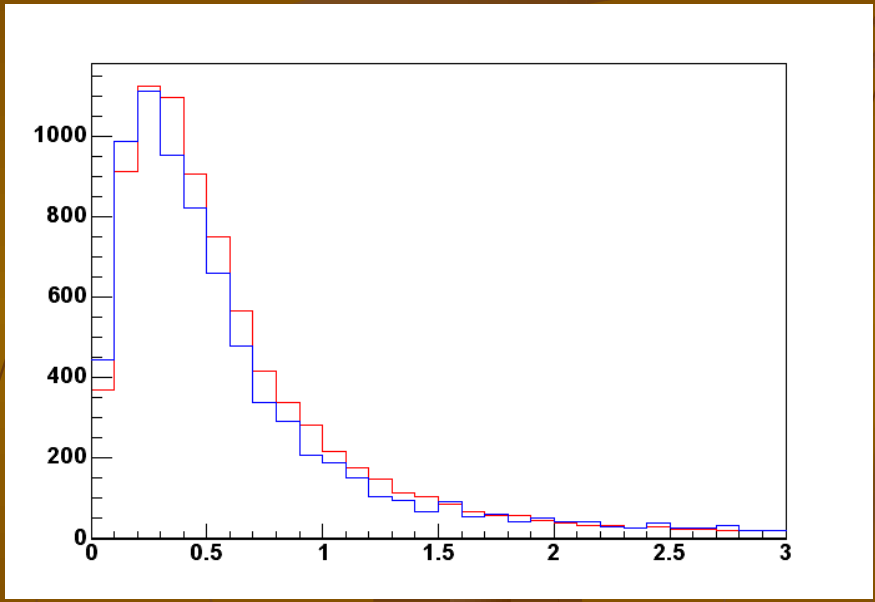
Primary DCA

N Pts > 10



DCA (cm)

N Pts > 40

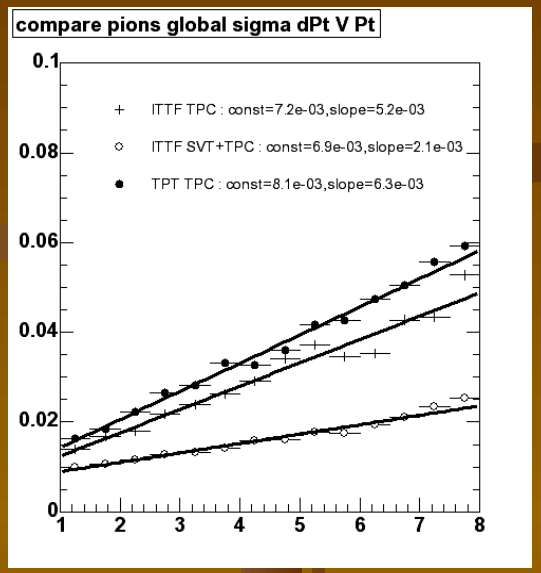


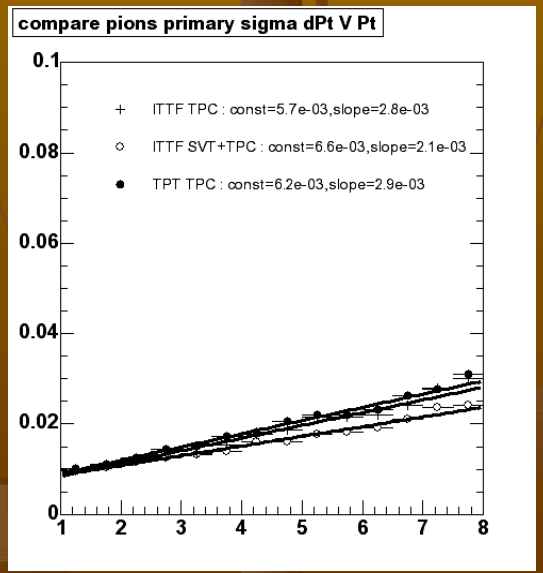
DCA (cm)

Primary Pions+
ITTF RED
TPT BLUE

Strangeness and SVT

- No valid comparison available yet
  - Sti need tuning on real data …
  - (bug in code ?)
- TPT/EST vs. Sti/SVT
  - Comparable residuals





The committee's conclusions

Many more results presented : Δη, ΔΦreconstruction bias, Curvature/Pt/tan(λ) pulls, resolution as Nhits etc …

Efficiency equal or higher than TPT

SVT team gives the OK to go

ITTF has demonstrated that Sti is tunable

Recommend

- starting tuning for real data immediately
- Proceed with old code freeze
- Start ITTF Integration in STAR Framework
- Sti code needs to be tagged at this stage, changes if any rigorously documented, tuning know-how passed

Road Map

Code freeze of old code, last library release	RedHat support Immediate DAQ100 evaluation pass = PWG manpower now	2 weeks September 1st
Real data tuning (starting ASAP) Association Maker extension	volunteer needed to work with Claude/Andrew	4 weeks September 15th
Integration issues Vertex finder, db (timestamp), calibration and corrections, dE/dx, cluster finder, StEvent feed, RunInfo & EventHeader, downstream table issues ?? …	All hand Software Sub-system Coordinators (TPC, TPC, …), reco and calibration leaders	1-2 month October 15th
PWG evaluation	2 to 3 testers per PWG depending on PWG size	November 10th
Embedding	Embedding team	1 month November 25th
d+Au re-production using ITTF		3 months (?) November 15th (start)