RICH

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- Status of hardware
- DQ monitoring
- Reconstruction software
- Alignment
- PID efficiencies for 2000 data
- Conclusions

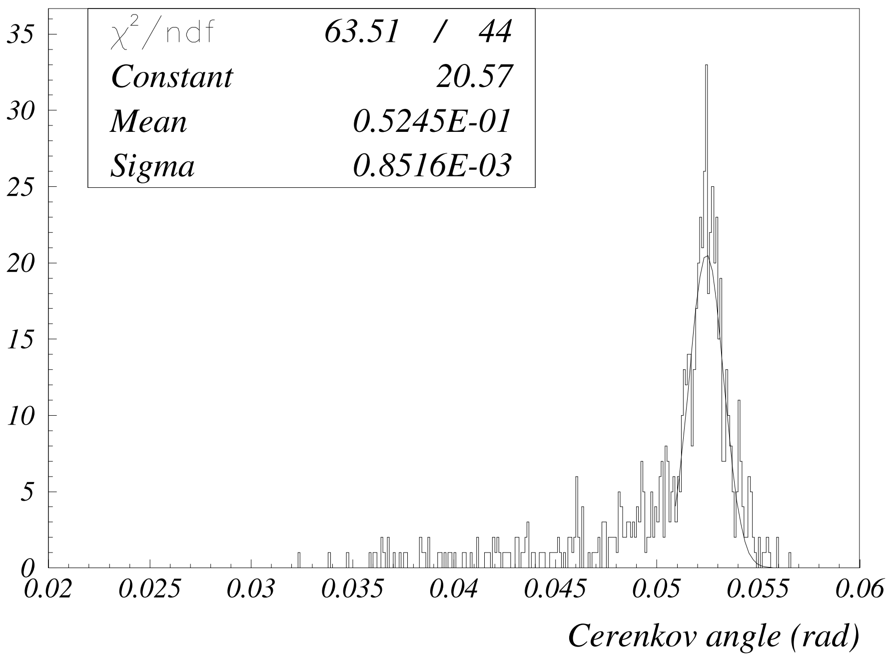
Hardware Status

- Gas system

-Vessel filled with C_4F_{10}

-Čerenkov angle $52.4mrad$ (measured on Run 18448)

$\rightarrow$No problems, running smoothly



- Mirrors

  -alignment (local) seems to be as in 2000 run period

  →to be finalized, when global alignment of tracking system is ready

- Photon detector

  -number of hot/dead channels the same as for 2000 run period

  -some 20 PMT's still missing

  →OK

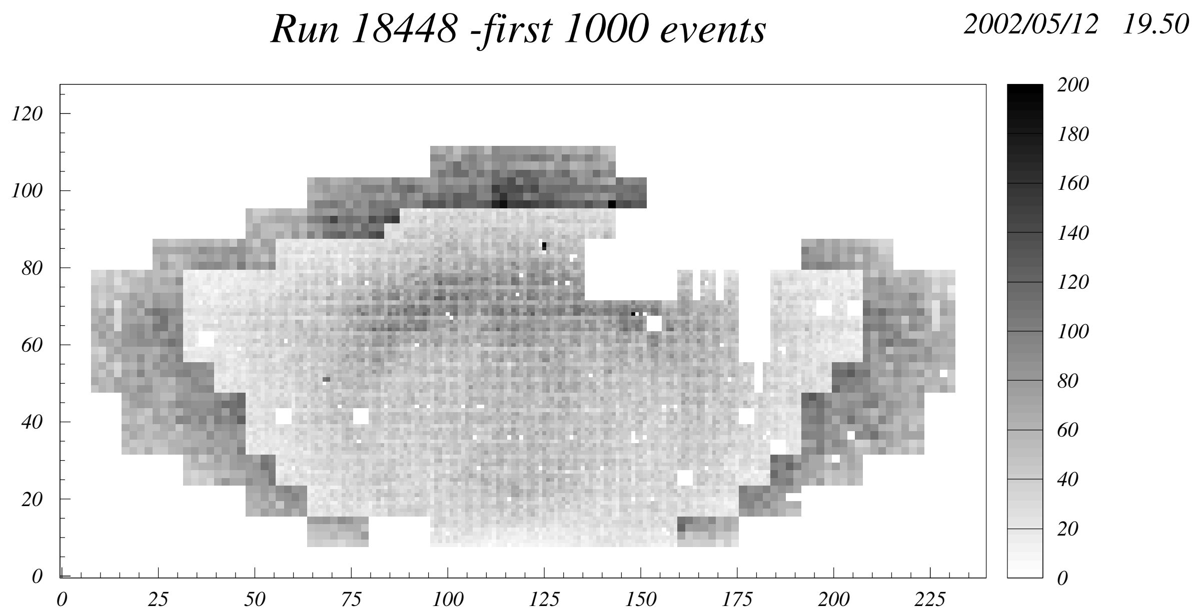
- Slow Control

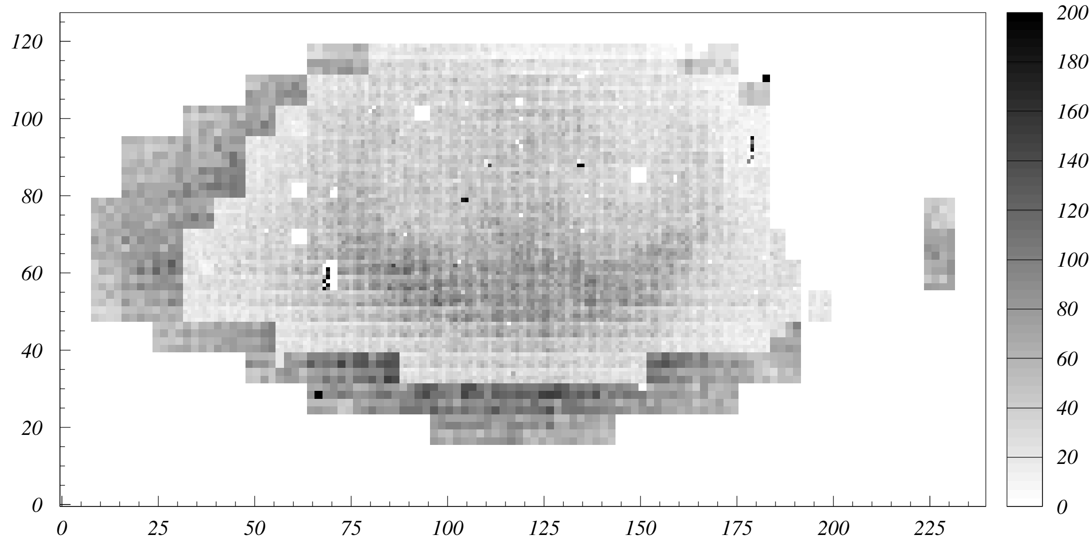
  -Low Voltage, Temperature: → OK

  -High Voltage: occassionally some problems, reason: old configuration file → will be fixed

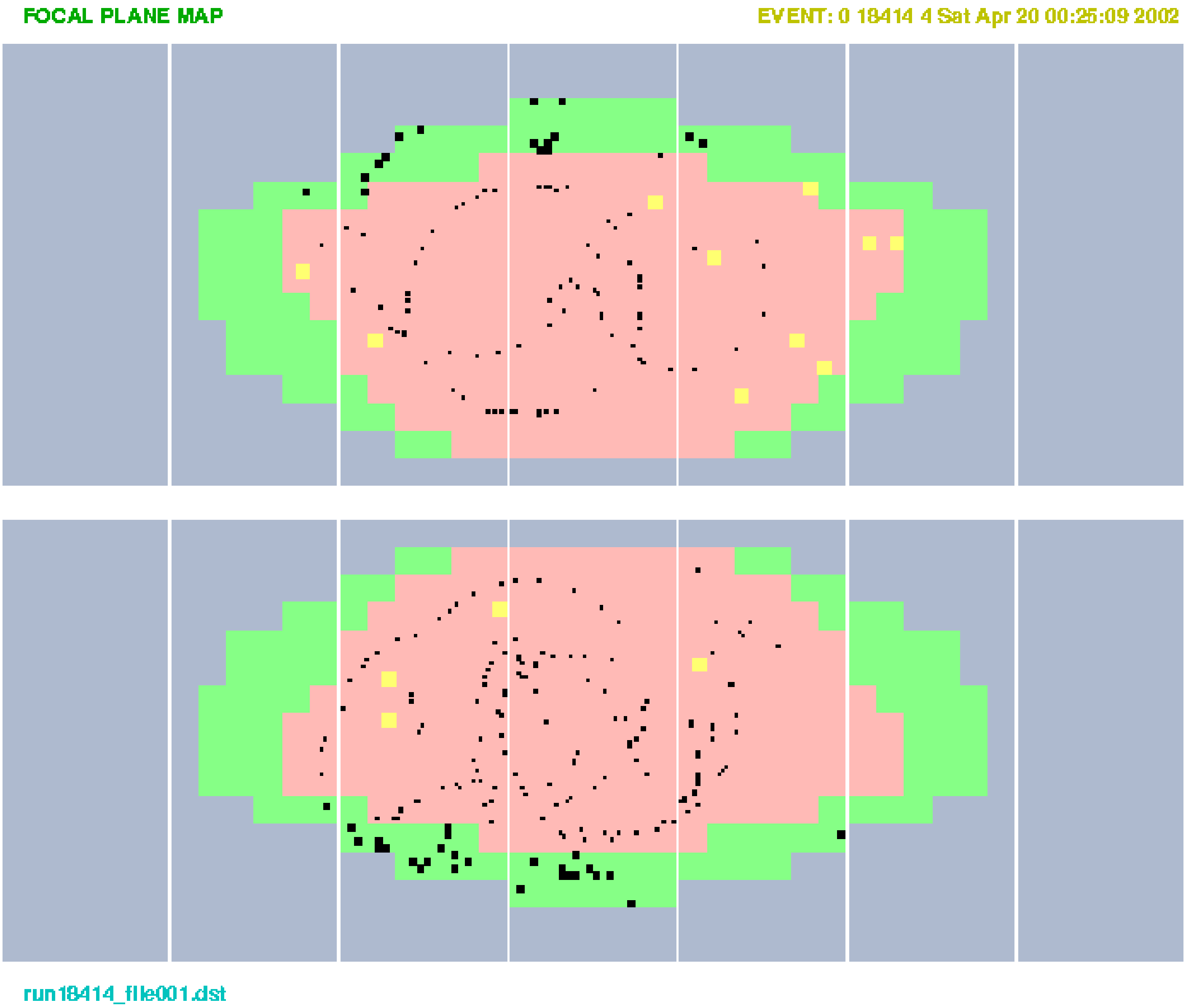
- DAQ

-problems with ID of two FED's, reason: wrong dip switch settings → problem fixed





So, we see rings ...



... RICH is ready for data taking !

DQ monitoring

- DQ histograms have been reorganized and reduced in the number

LVL	ONLINE	OFFLINE	STORED	TOTAL
RAW	2	1	3	5
HIT	2	1	1	2
REC	1	3	17	28
	5	5	21	35

- DQ monitoring variables redefined

  -4 variables to monitor raw data

  -2 variables to monitor radiator gas properies

  -8 variables to monitor reconstruction (PID)

  $\rightarrow$not final (might be too many ...)

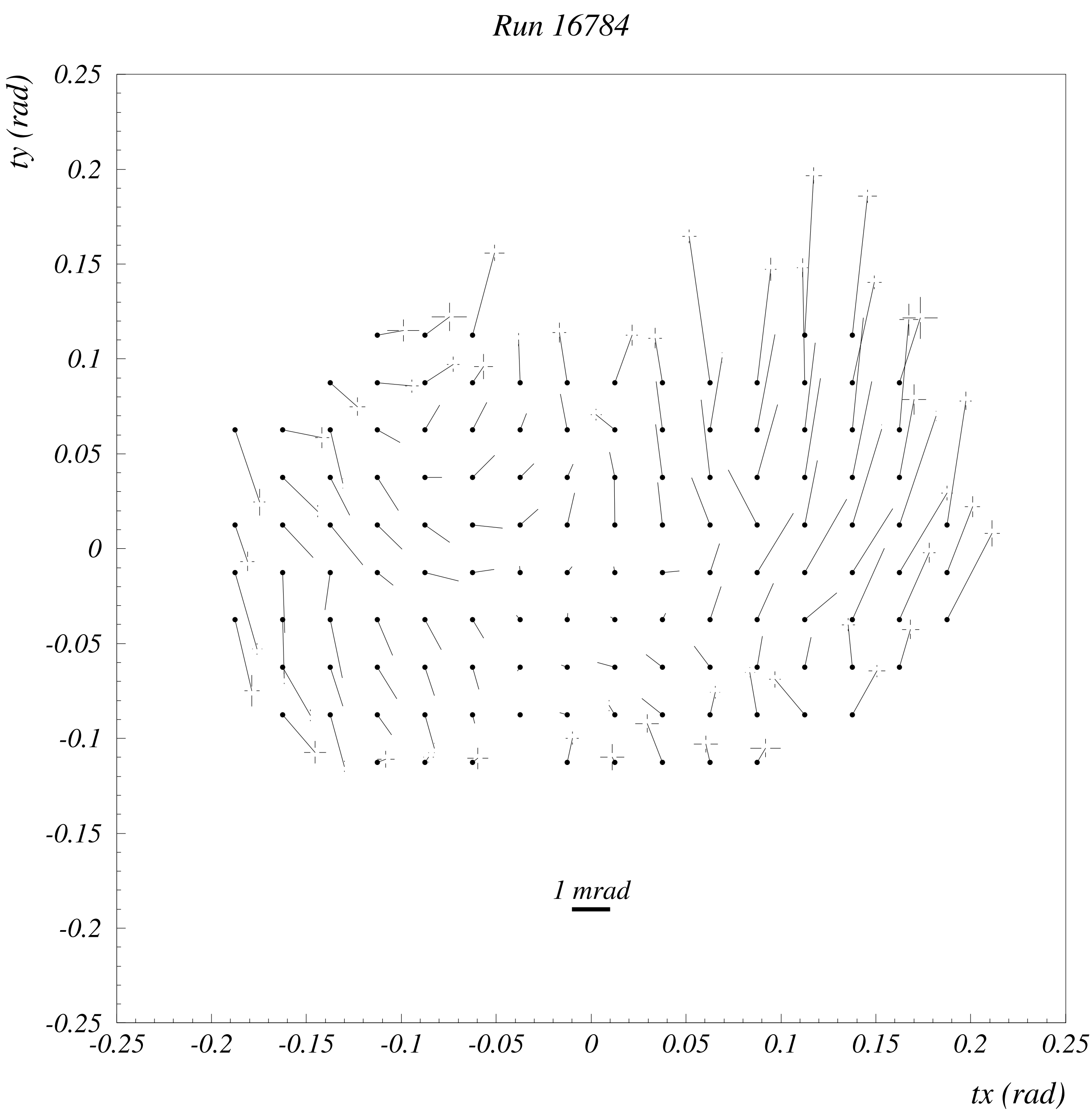
- some work still has to be done

Reconstruction software

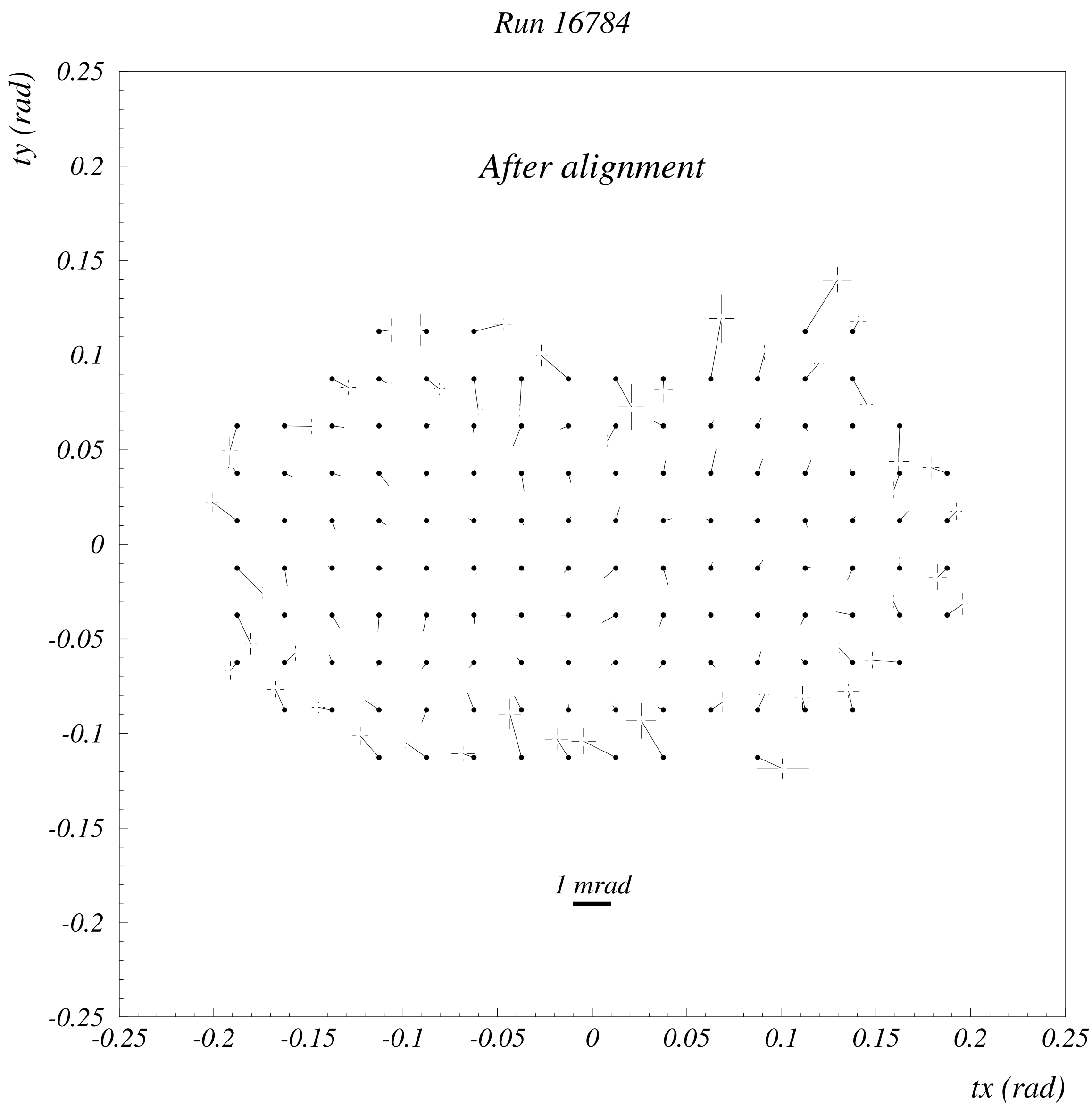
- Riter package: upgrade of the code (ARTE-03-09-r8)
  - new global alignment used ($\mathrm{acga}- > \mathrm{cmp} = 5$)
  - use of local alignment (not used before)
  - better estimates of contrubution of track angular errors to cerenkov angle resolution
  - redefinition of DQ histograms

Alignment

- It was realised quite late (after rp0003 of 2000), that the alignment of the RICH is bad.



- As usual, the alignment is divided into:
  - local (alignment of individual mirrors)
  - global (usual global transformations - table ACGA)
- Local turned to be the same for all runs, no sagnifficant change even compared to 99 (B=0) data. Global: using the same run periods as for tracking.



PID efficiencies for 2000 data

- Efficiencies have been evaluated for Riter likelihoods
- Efficiency matrix is given for rp0002 and rp0003
  - for soft, medium and hard selection

$\mathrm{www-hera-b.desy.de/subgroup/detector/rich/}$

- Selection criteria

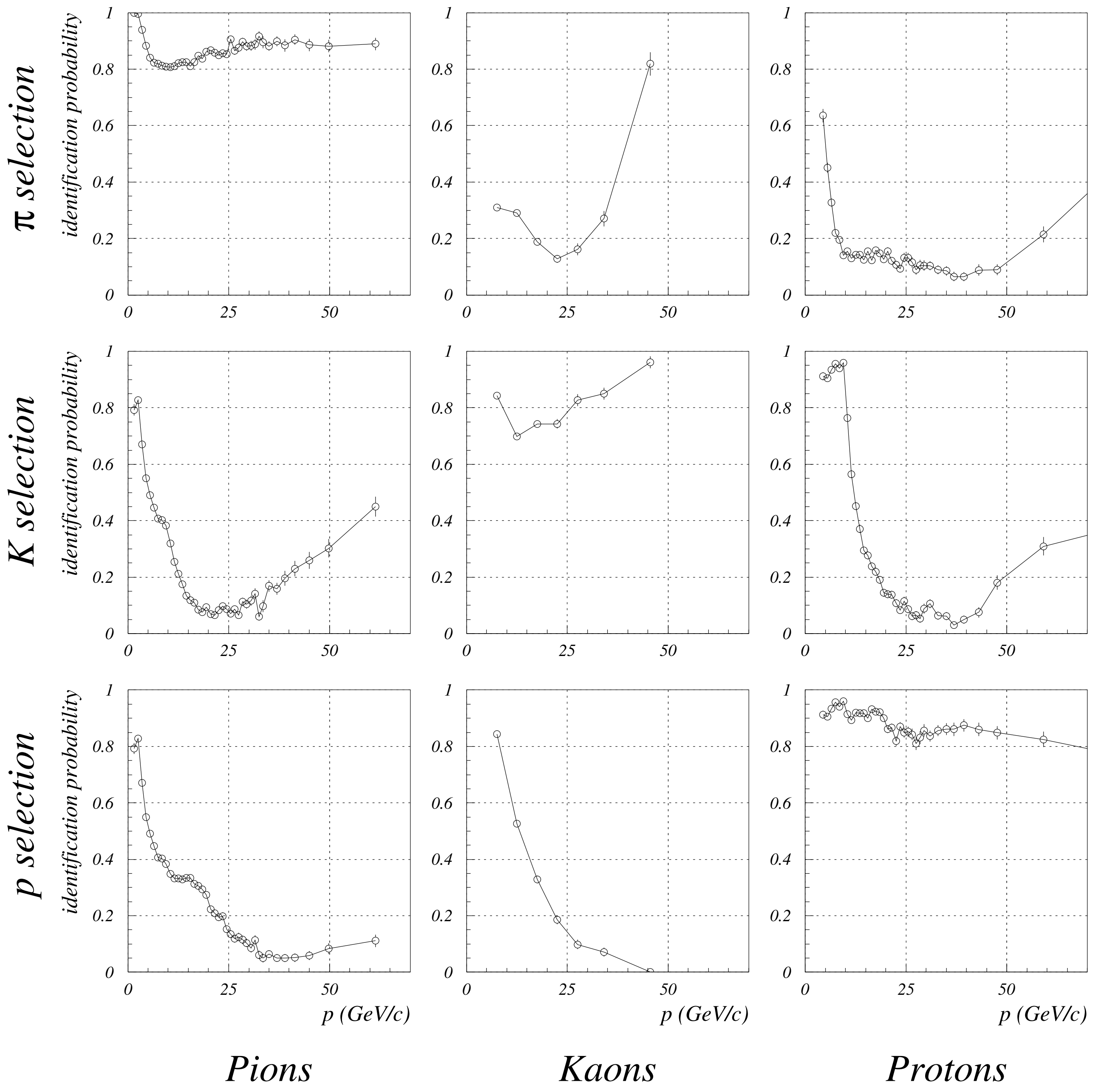
pion	$\mathrm{rtra} \to \mathrm{lre} + \mathrm{rtra} \to \mathrm{lrmu} + \mathrm{rtra} \to \mathrm{lrpi} > \mathrm{cut}$
kaon	$\mathrm{rtra} \to \mathrm{lrk} > \mathrm{cut}$
proton	$\mathrm{rtra} \to \mathrm{lrp} > \mathrm{cut}$

selection	soft	medium	hard
pion	0.05	0.50	0.95
kaon	0.05	0.30	0.95
proton	0.05	0.30	0.95

- Sources: $K_s \to \pi^+\pi^-$, $\phi(1020) \to K^+K^-$, $\Lambda \to p\pi^-$, $\bar{\Lambda} \to \bar{p}\pi^+$

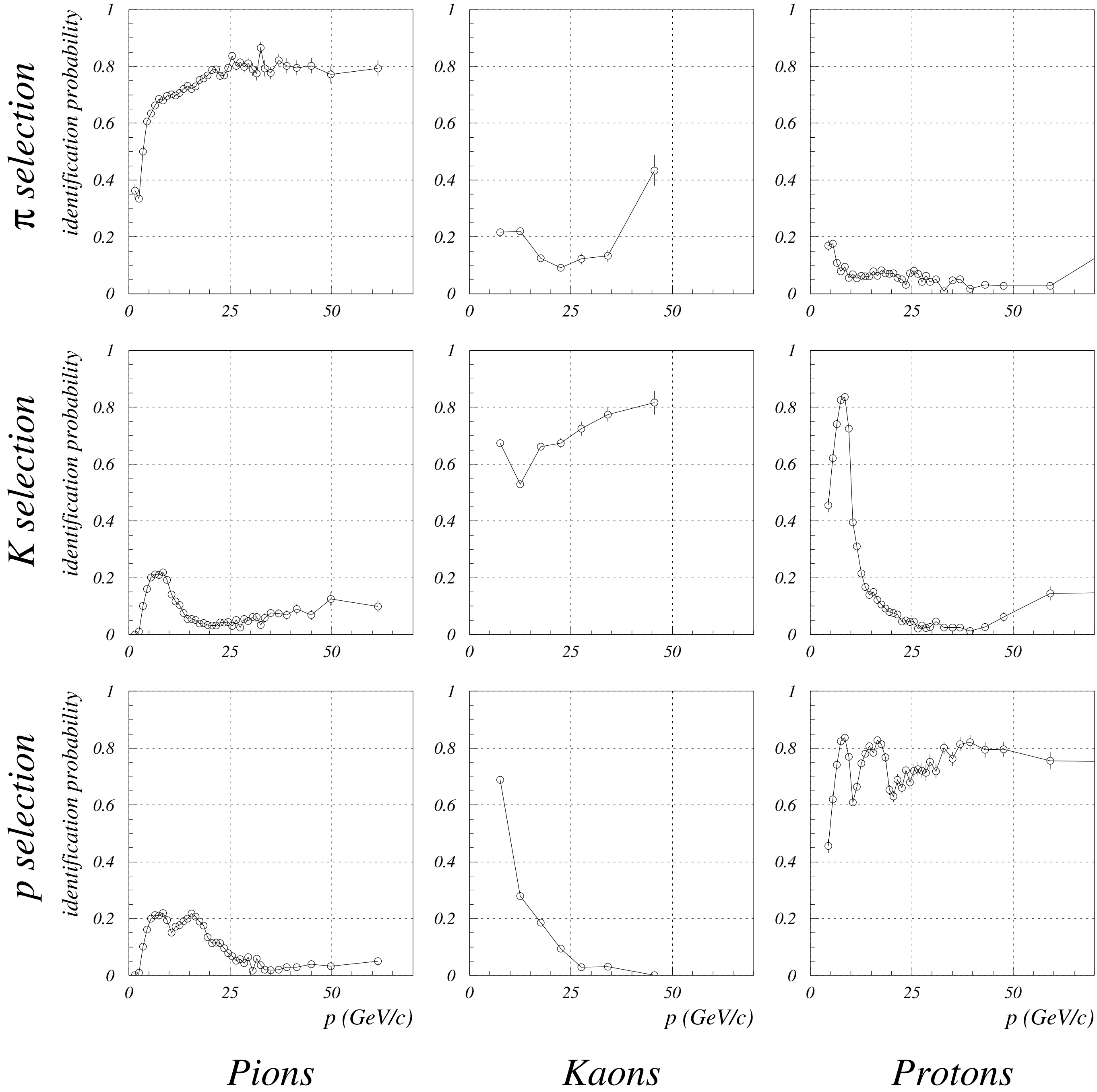
- Soft selection

rp0003, riter likelihoods

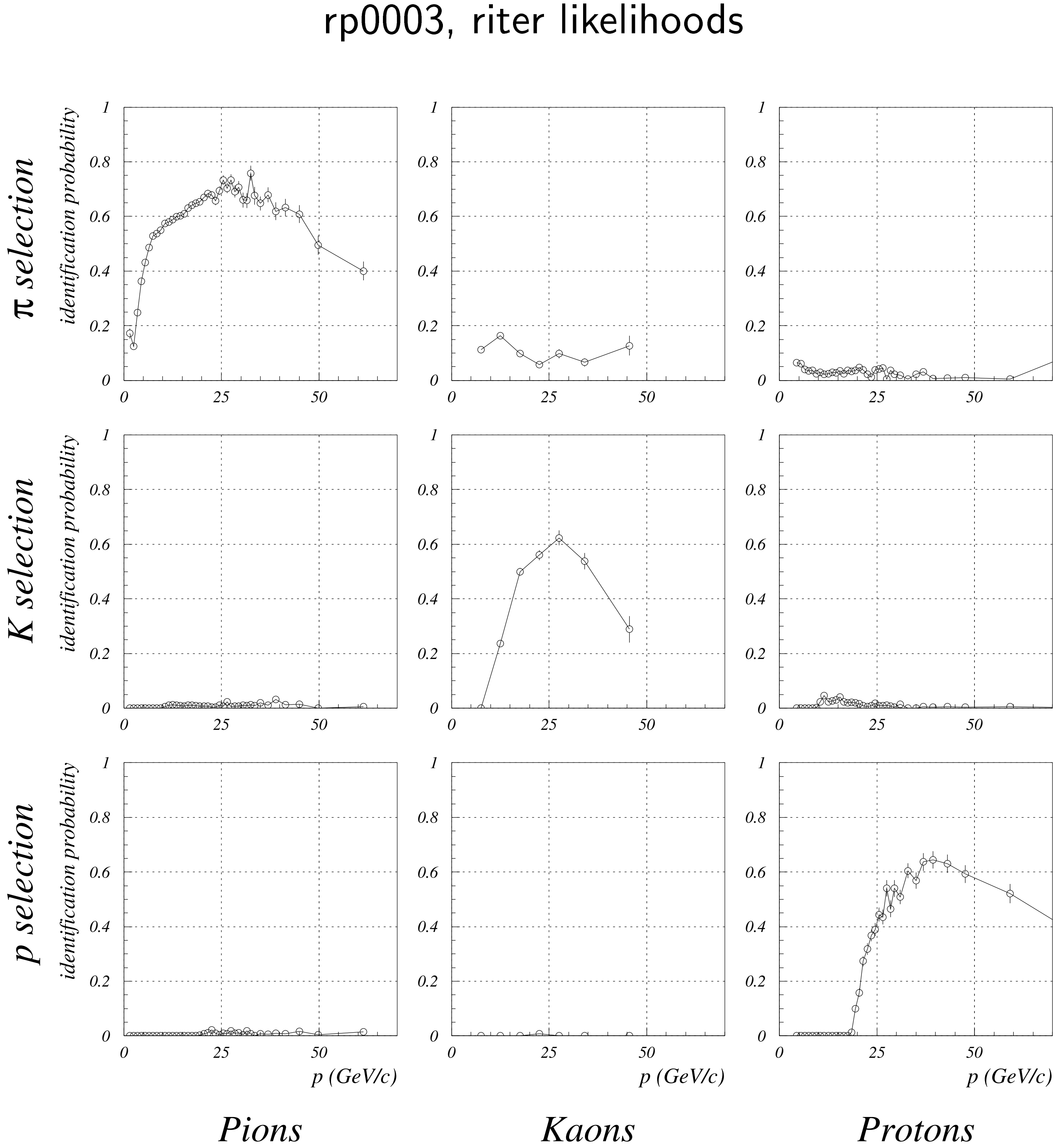


- Medium selection

rp0003, riter likelihoods



- Hard selection



Conclusions

- RICH is ready for data taking
- Documentation/instructions for shift crew/on call experts have been updated - see HERA-B Shift Manual web page
- Alignment will be done, when global alignment of tracking system is ready