TOFp, pVPD, & TOFr in Run-3

star operations critique meeting
BNL, July 16, 2003

W.J. Llope for the TOFp detector experts
Plans for run-3 from Run-2 Critique Mtg....

- Integrate TOFr into TOFp Systems
  new tray, significant signal cabling
  requires separate gas system containing a flammable gas

- TOFp “Standard Maintenance”
  FEE and Cell repair

- Improve shift crew interface
  Evolve towards one operations GUI

- Improve online monitoring plots

- pVPD shield improvements? unnecessary

- Improve input to Fast Offline? back burner

...Plus

- Recommission TRG interface for new TCDs
  required custom PECL→TTL translator...
  required TCD reprogramming to “hold levels” until next word...

- Verify SGIS interlocks of rack power

- Auto-reramp functionality in TOFr HV control code

- Continuous TOFr gas mixture monitoring/alarms

- STAR Level-0 trigger based on TOFr & pVPD
Integration of TOFr into TOFp Systems....

system up & running on day ~23

~9M total pVPD physics evts

~500k total matched primaries to TOFp

~600k total matched primaries to TOFr

significant TOFr data sets with

100% freon
95% freon + 5% isobutane

expect physics from both trays...

...very successful run for us

...our deepest thanks to the shift leaders & crews, STSG, RTS, TRG, DAQ
TOFp systems fully under star slow controls during run-3...  (frank)
Operations “Events” during Run-3

“Standard” assortment of failures of cells, discriminators, adc & tdc units, etc...
  standard module-swapping to repair...

handful of yellow alarms in days after SC monitoring interface was deployed...
  typically at very beginning of new spills... TOFr HV trips, then autoramps → alarm
  just took a few attempts to get thresholds right

single red alert on TOFr gas from detected increase in isobutane/freon ratio... (march 19)
  quick response by crew, perfectly according to the TOF SC procedure...
  freon regulator got “stuck” - knob tweaked... did not reoccur.

repeated yellow alarms indicating TOFr HV trips in last ~2wks of run...
  by cable swapping, problem isolated to one of the CAEN A631 HV pods.... now under repair

Level-2 Latency problems (early march)...
  TOFp local DAQ turns out to be an excellent canary for L-2 latency problems...
  on ~3 occasions, shift crew response was to simply kick out TOF (!!)...
    (sometimes crew contacted us, sometimes they didn’t)....
  eventually these L2 problems went away (no action ever taken on our side)...

Trivial TCD Problem
  after an access, some cables at TOF TCD front panel moved accidentally (solved quickly)...

TOF TCD problem: TOF went 100% busy after random number of events
  began after a detector access...no action on our side during this access
  there was lots of work at TRG racks...
  lots of testing on our side all we could figure was a loose cable on TCD side...
  problem disappeared after a later access where again lots was happenening at the TRG racks...
Operations Plans for Run-4:

new pVPD Base plate design
to ameliorate space conflict w/ PMD

done (STSG)

TOFr now back at Rice, to be disassembled...

TOFr’ now under construction...

→ Integrate TOFr’ into TOFp systems
  • no new cabling...
  • no new facilities requirements, safety issues, etc....

in progress

TOFp standard maintenance (cell and fee repair)

standard BOR stuff

move TOFp to a different rail?
  • by one rail so that it is “centered” in Sector 20?
  • by many rails to be in front of an EMC module?

under discussion

(note run-4 will be the last run for TOFp)...

new HV path for pVPD? (higher gain in run-4 p+p)

under discussion

recommission DAQ & TRG interfaces and L0 trigger
  • RH6→RH9 w/ expected kernel issues
  • in process of moving all sources to CVS/online

standard BOR stuff

additional refinements to interfaces & procedures

always in progress