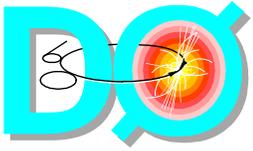


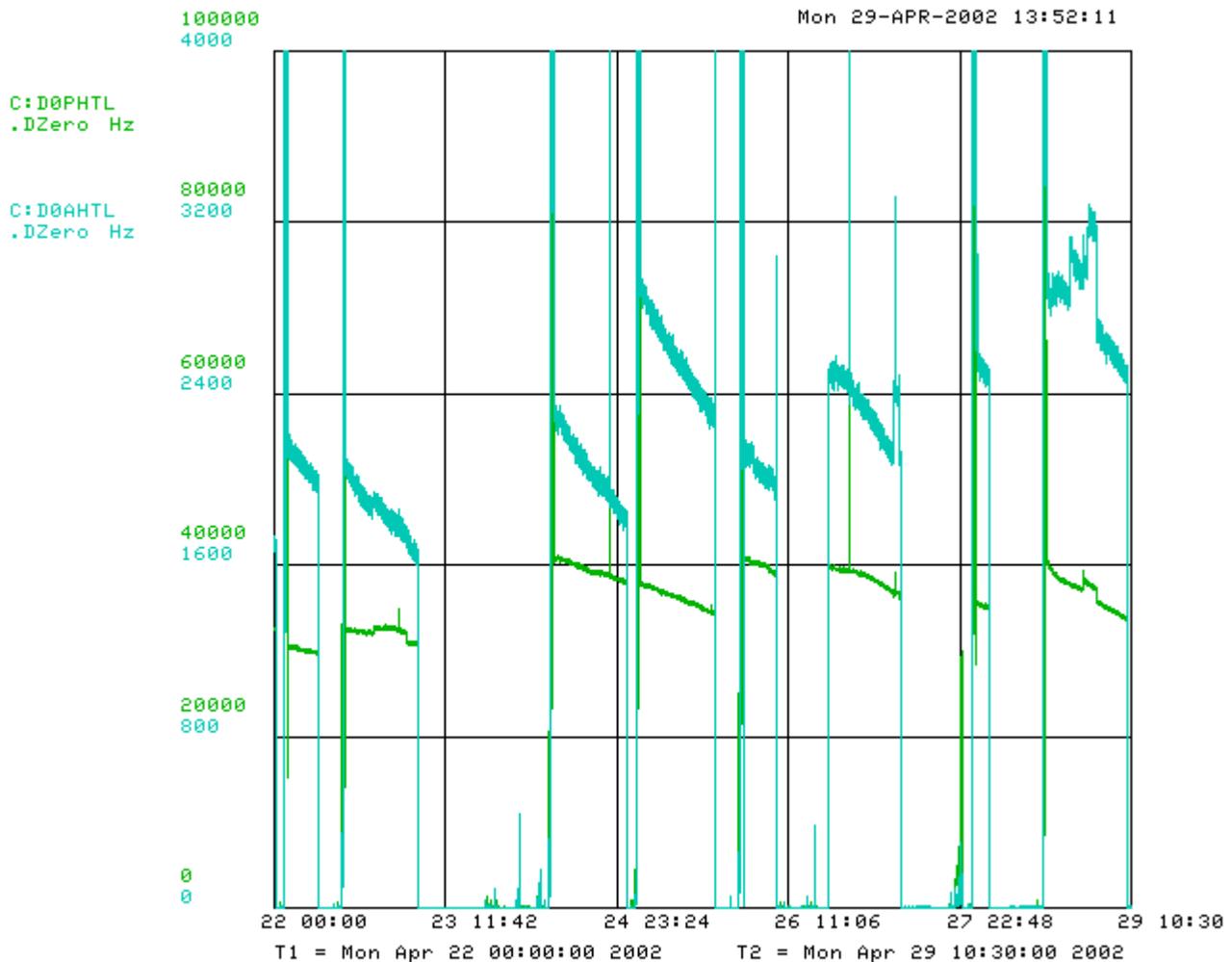
## D0 Status: 04/22-04/29

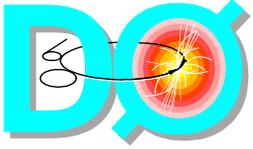
- Week integrated luminosity
  - ◆  $2.8\text{pb}^{-1}$  delivered
  - ◆  $2.1\text{pb}^{-1}$  utilized (75%)
- Data collection
  - ◆ global data collections during each store
    - ▲ full detector in readout
    - ▲ physics trigger menu: v5.01
  - ◆ major sources of downtime last week
    - ▲ DAQ system debugging/tests
    - ▲ sub-detectors readout problems
  - ◆ special runs collected
    - ▲ QCD rapidity gaps trigger
    - ▲ preshower AFE gain optimization
    - ▲ forward muon inclusive cross section measurements
- Access last week
  - ◆ lost calorimeter power supply at 1pm on Friday (25% of the D0 end calorimeter)
  - ◆ supply was replaced before beginning of the next store
- Currently no requests for the hall access



# Background Conditions

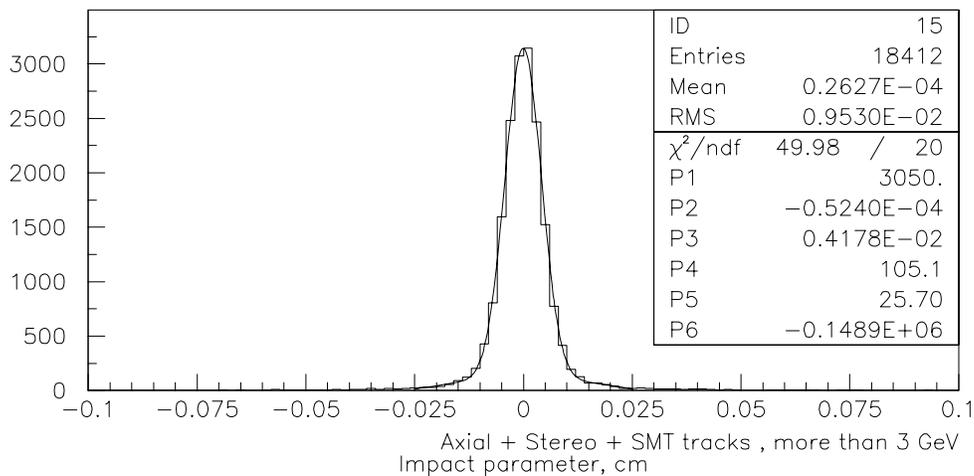
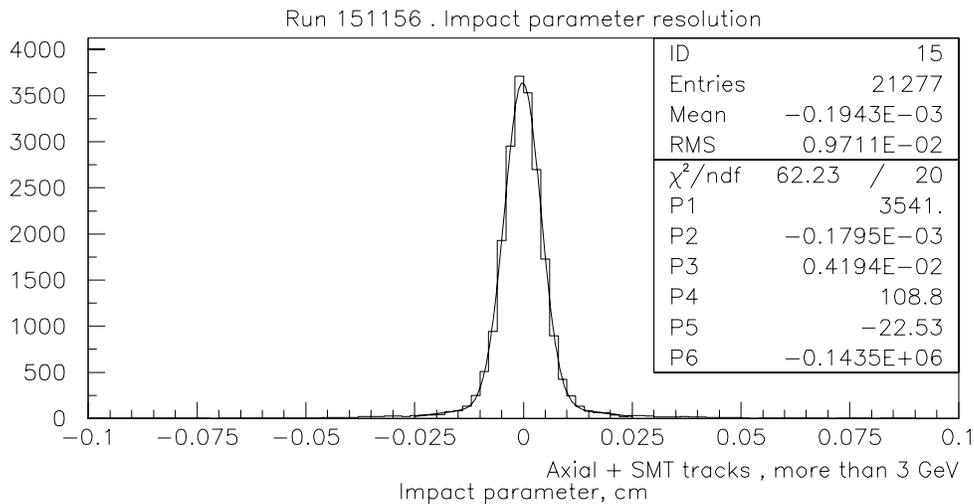
- Plot of  $p$  and  $p$ -bar halo last week
  - ◆ stable
  - ◆ within acceptable limits

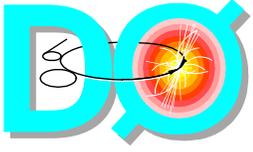




# Beam Position

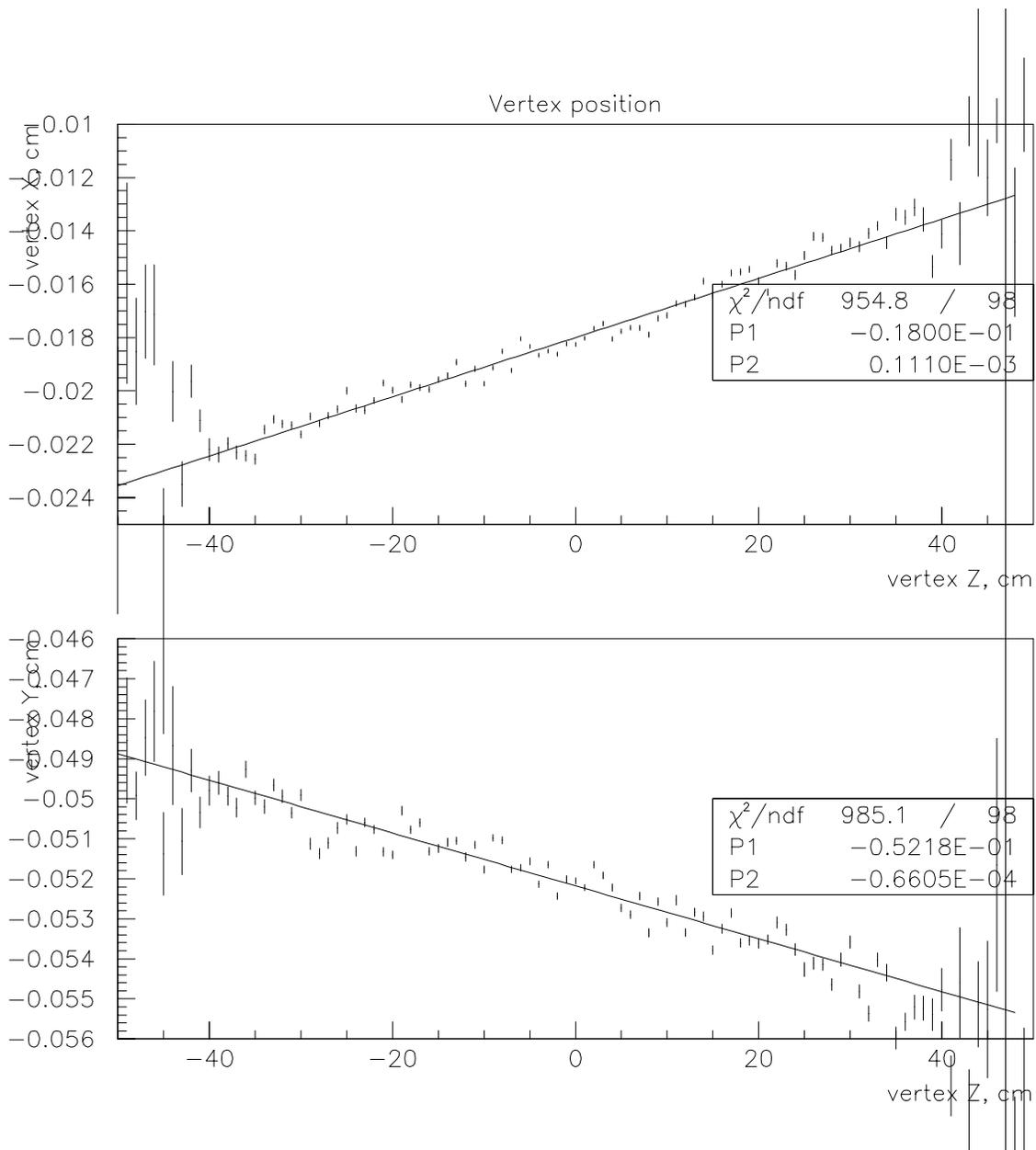
- Beam interaction region resolution is improved in the latest reconstruction version due to progress in silicon alignment

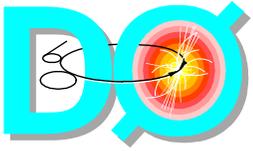




# Beam Position

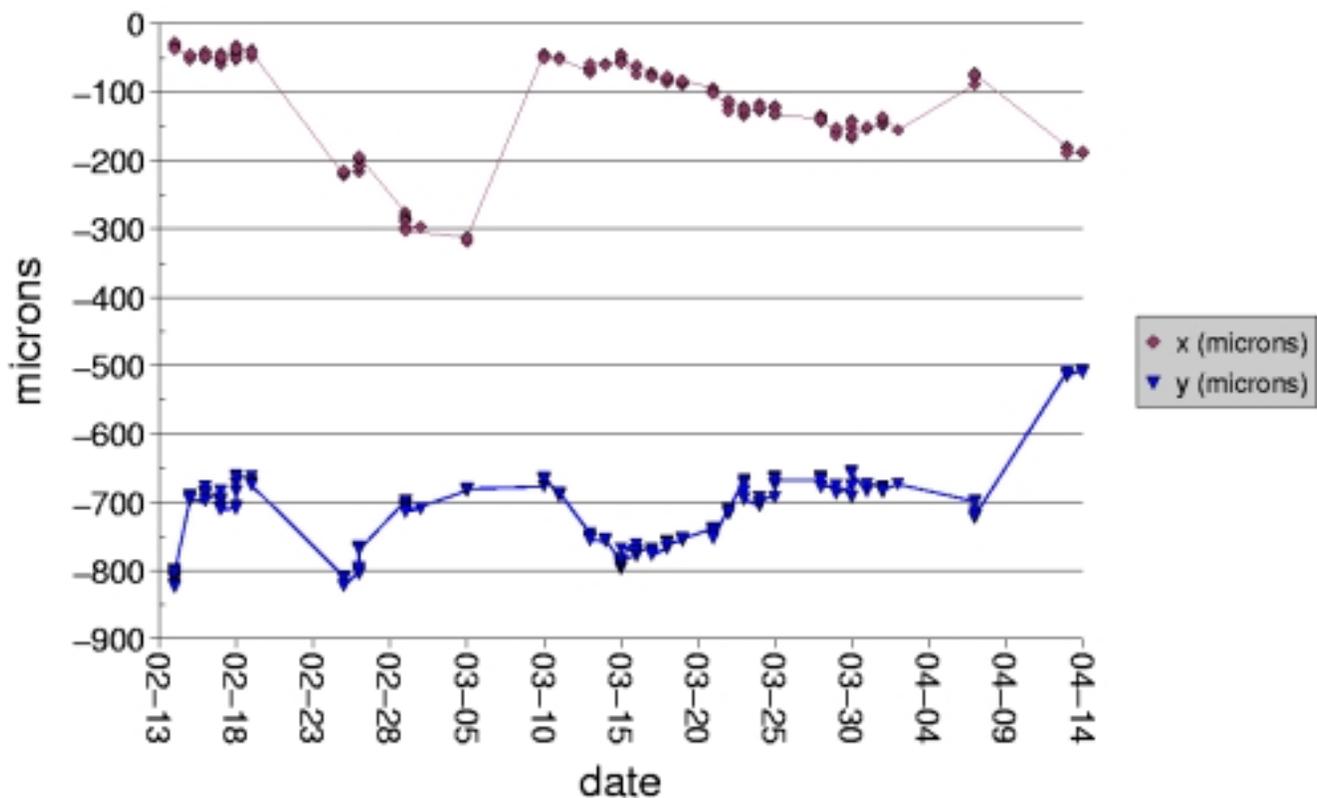
- With higher resolution beam slope with respect to the DO detector has been measured
  - ◆ specification is less then 0.2mrad
  - ◆ both in X-Z and Y-Z planes slope is within specs

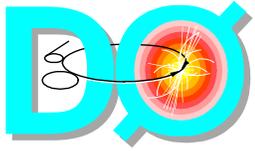




## X-Y Beam Position

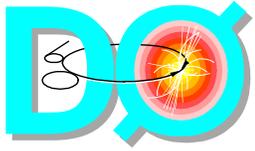
- Stability of beam position is monitored with high precision
  - ◆ within 10microns during single store
  - ◆ up to 100micron jumps during studies period
  - ◆ variations over 2 months are within 0.3mm
- Studies of vertex stability for silicon tracking trigger are in progress





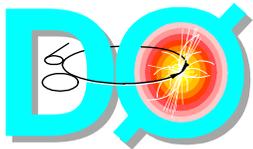
# D0 Detector Status

- Luminosity detector
  - ◆ stable operation
- Silicon detector
  - ◆ silicon detector is running reliably since water leak was fixed 3 weeks ago
  - ◆ high voltage turn OFF time is down to 3 minutes
    - ▲ improvements in overall D0 operating efficiency
- Fiber tracker
  - ◆ fully instrumented and in readout
  - ◆ finishing temperature stabilization upgrade for all AFEs
  - ◆ working on CFT and CPS commissioning
  - ◆ populating central preshower detector with AFE boards
- Calorimeter
  - ◆ lost/replaced low voltage power supply last Friday
  - ◆ studies on response non-linearity at low energy is in progress
  - ◆ stable operation
- Muon system
  - ◆ stable operation
  - ◆ non HV trips, all detectors in readout
- Forward Proton Detector
  - ◆ routine pots insertion during stores



## Level 2 trigger On-line

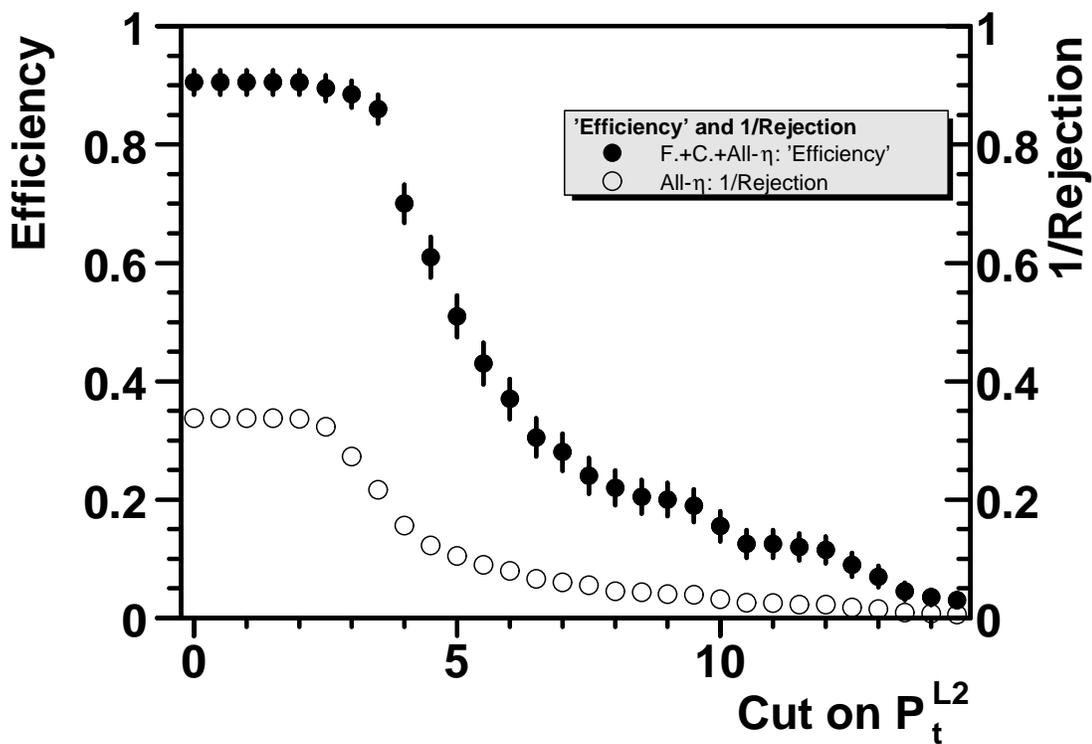
- 3 Levels of trigger planned with output rates
  - ◆ Level 1 trigger - 10kHz
  - ◆ Level 2 trigger - 1kHz
  - ◆ Level 3 trigger - 50 Hz (to tape)
- As of today we are running two trigger levels
  - ◆ Level 1 with rate up to 100Hz (limited by DAQ)
  - ◆ Level 3 filtering events written to tapes
- This week we are starting operations of Level 2 trigger system
  - ◆ based on spec processors collecting (some) information from front-ends and selecting/rejecting events based on fast algorithms
  - ◆ currently Level 2 output rate will be limited by DAQ readout rate to about 100Hz
  - ◆ starting from muon triggers only - availability of Level 2 input information
- Short term Level 2 will provide
  - ◆ prescales reduction on inclusive single muon triggers by a factor of  $\sim 2$
  - ◆ experience running Level 2 trigger system on-line
- Long term Level 2 will provide
  - ◆ cut on muon Pt to remove prescales from single muon inclusive triggers (W's)
  - ◆ addition of calorimeter and fiber tracker terms
  - ◆ silicon displaced vertex triggers

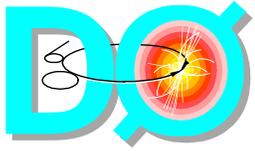


## Muon Level 2

- Will start from “loose” requirements at L2
  - ◆ efficiency expected to be 99%+
  - ◆ rejection factor is in the range of 1.6-2
  - ◆ no cut on  $P_t$
  - ◆ main feature is use of trigger (scintillation counters in use at Level 1) and tracking (not in use at Level 1 yet) muon detectors
- After initial commissioning period will introduce  $P_t$  cut on muons found at Level 2 trigger
  - ◆ can get considerable (10-100) rejection depending upon  $P_t$  cut
  - ◆ would like to be careful to be sure we are not losing events with high  $P_t$  muons on the trigger level

'Efficiency' per event with > 0 offline-reco muons:  $p_t^{\text{reco}} > 4.0$  GeV





## This Week DO Run Plan

- Global data collection today and tomorrow
  - ◆ Level 2 trigger is running on-line
  - ◆ no Level 2 rejection (yet)
- During beam studies
  - ◆ access to the hall for AFEs installation
  - ◆ Level 2 system commissioning
- Continue physics data taking with full detector in readout starting Wednesday
  - ◆ global trigger list v5.1
    - ▲ Level 2 rejection on “copies” of single muon triggers
  - ◆ readout rate ~100Hz
  - ◆ rate to tape ~30Hz
- No access requests as of now
  - ◆ detectors/electronics in the collision hall running reliably
- Working on schedule for “June” shutdown
  - ◆ planning to accomplish most critical jobs within 12-14 days