CDF Operations Summary

Arnd Meyer
June 24, 2002

- Three Stores
  - Store 1434 in Tuesday 6am, initial luminosity ~$2 \cdot 10^{30} cm^{-2} s^{-1}$; mostly "re-commissioning"; took $13 nb^{-1}$ of $27 nb^{-1}$ (8hrs)
  - Large pbar losses in the beginning, most HV in standby for the first couple of hours. No Silicon.
  - Special runs: COT HV scan, Minimum Bias run, trigger table tests.
  - Store 1443 in Wednesday morning, initial luminosity ~$5 \cdot 10^{30} cm^{-2} s^{-1}$. Work on reoccuring L1 calorimeter trigger problem (ultimately swapped boards). Integrate Silicon for the first time (fair amount of trouble in doing so). Collected $173/303 nb^{-1}$.
  - Store 1448 in Thursday morning, initial luminosity ~$7 \cdot 10^{30} cm^{-2} s^{-1}$. Efficient data taking after some L2 problems in the beginning, but store aborted after ~5 hrs. Took $68/100 nb^{-1}$
- Detector back into physics data taking operation after ~1.5 stores!
  - Wednesday owl shift was taking data with 90% efficiency

CDF Operations Summary

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- 6 controlled accesses Sunday/2xMonday/Wednesday/Thursday/Monday
  - Mostly to correct minor post-access problems (disconnected cables and such)
- Sunday morning (3 hrs)
  - CMP: recovered 12 channels (ASD connector was accidentally unplugged during closing on Friday)
  - COT: one TDC reseated, another one replaced
- Monday morning: Reseated COT repeater card
- Monday afternoon: Bad TDC → reseated
- Wednesday 1am-3am
  - SMX: swapped bad SMXR board (ccal05), SMD board (ccal11); checked possible cable disconnect
  - Silicon: changed bias-shorting jumpers for three ISL supplies
  - Silicon: measure clock width (SB2W10), light output (SB3W8L2)
- Thursday: Silicon, BMU HV, SMX
- Monday: Additional work on SMX, Silicon, Muon Scintillators

Silicon Status

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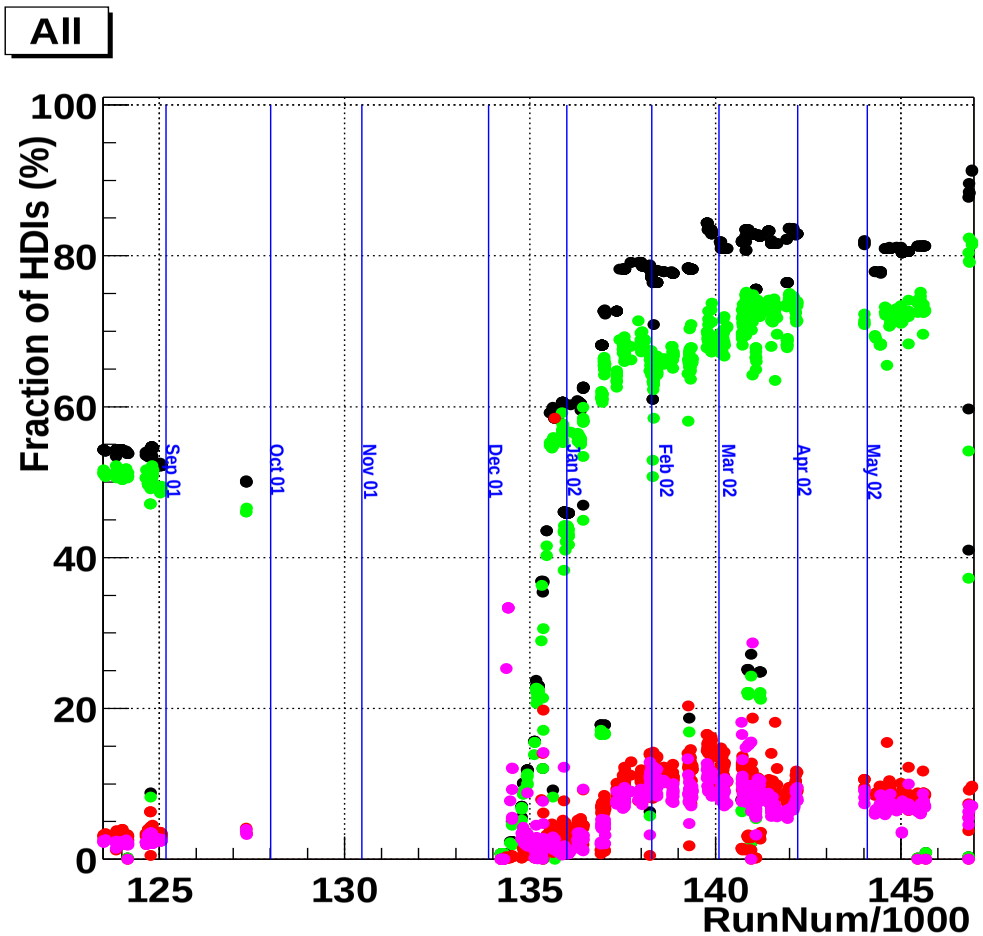

- Access Summary
  - ISL cooling: 4/6 lines on east opened, all lines on west opened
  - Newly cooled ladders commissioned: 129/132 ladders "good"
- Silicon re-integrated into DAQ during store 1443 (Wed)
  - Powered up without problems
  - Some DAQ problems, solved by reverting to older VRB firmware
- Silicon back in normal operating mode
  - Included in every store that is considered "safe"

Earthquake

Arnd Meyer
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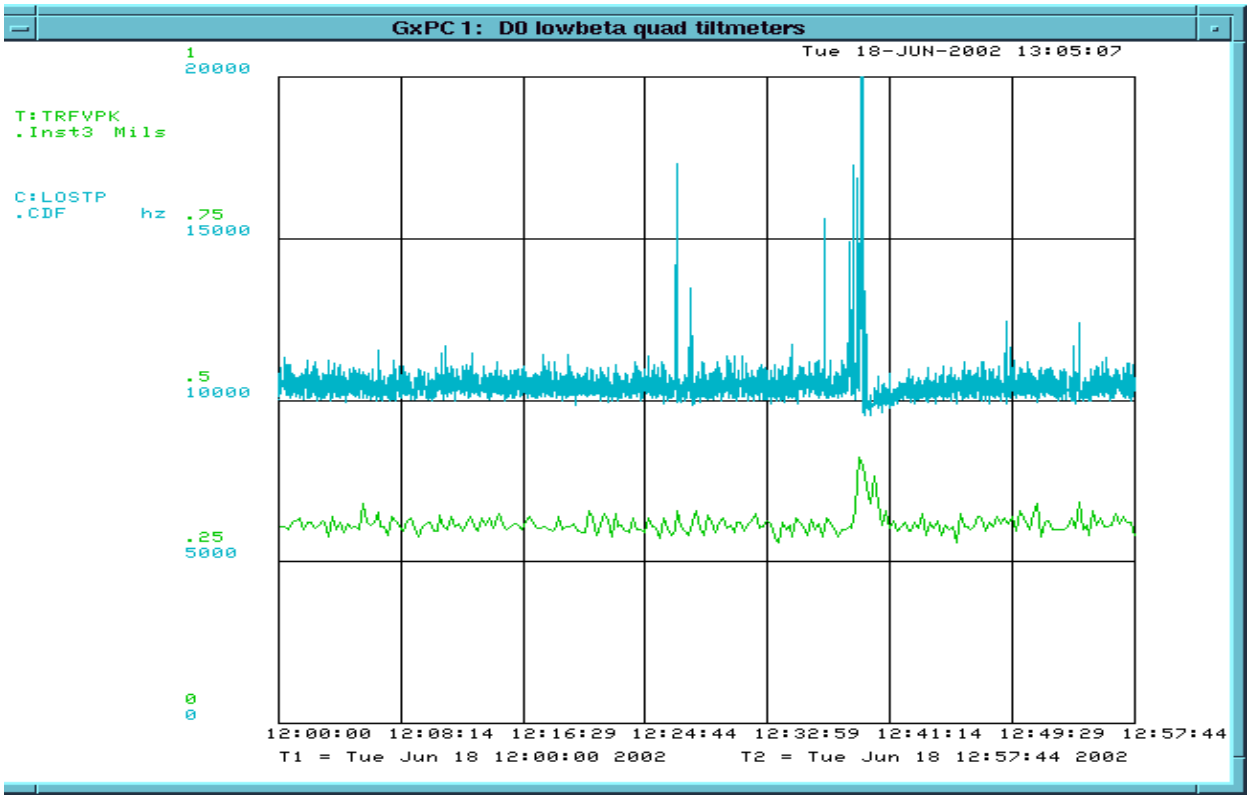
- 12:37 Tuesday: Earthquake (mag 5.0) near Darmstadt Indiana
- 12:39 spike in LOSTP and vibration monitor at F0
- Delay fits the propagation velocity data posted by the US Geological Survey



Vacuum at F11

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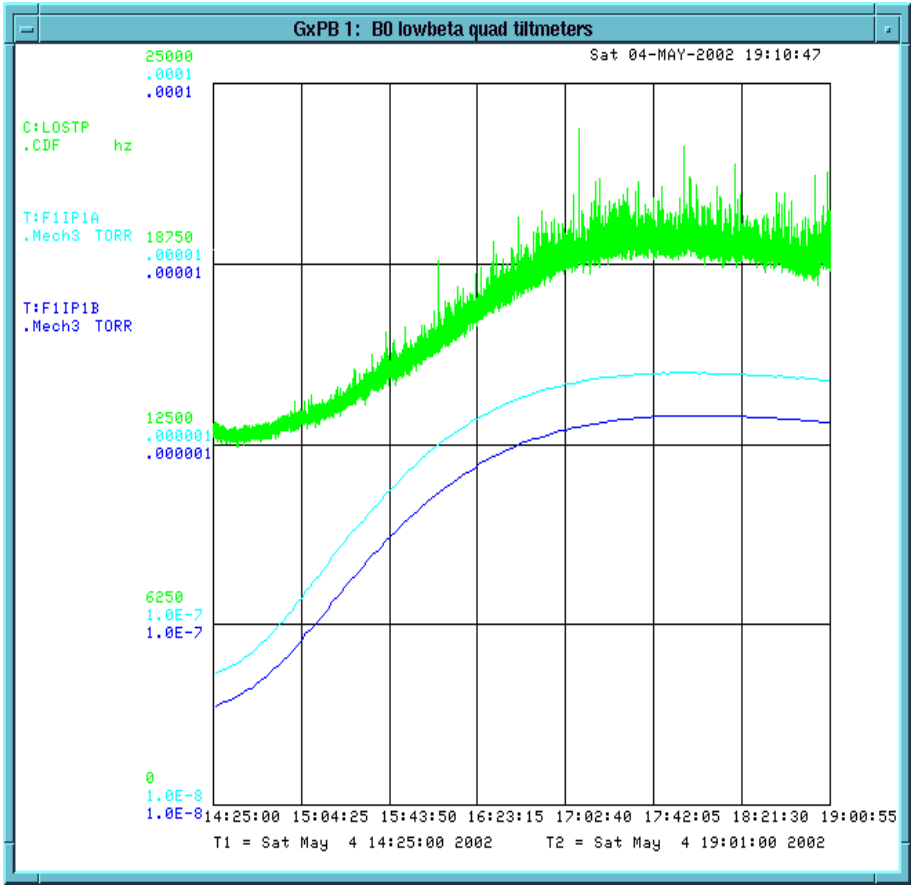
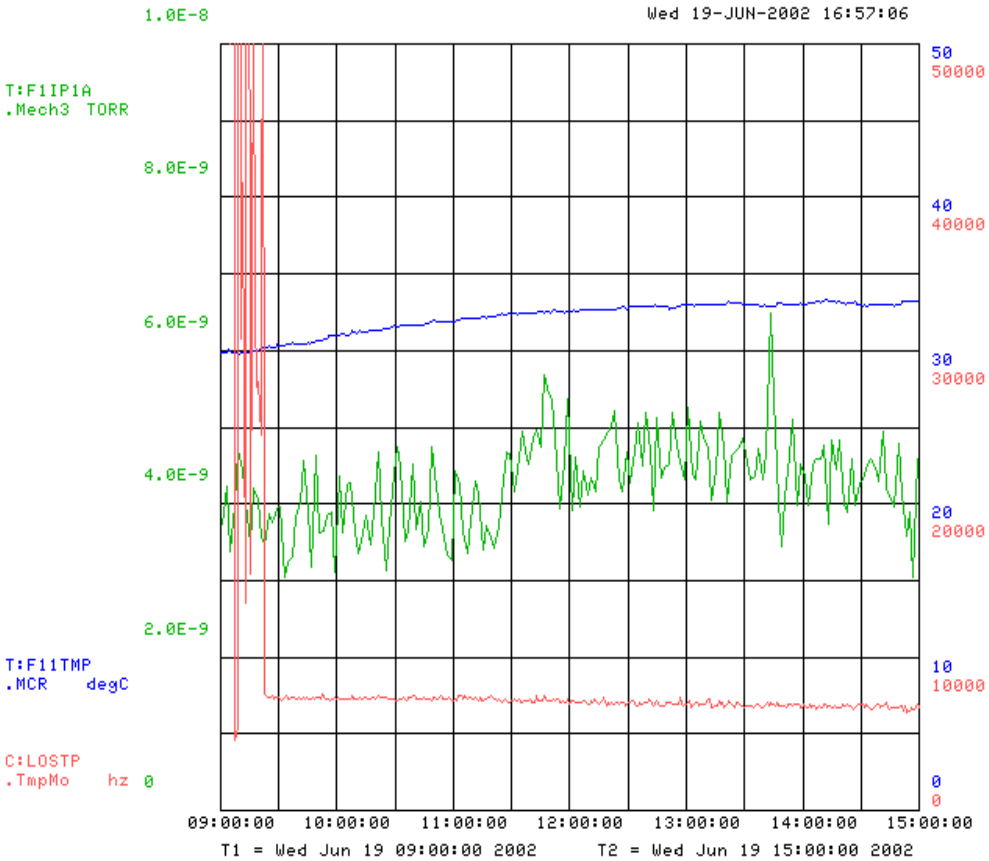
- Vacuum at F11 greatly improved since the new ferrites were installed in June shutdown





B Summer Preview

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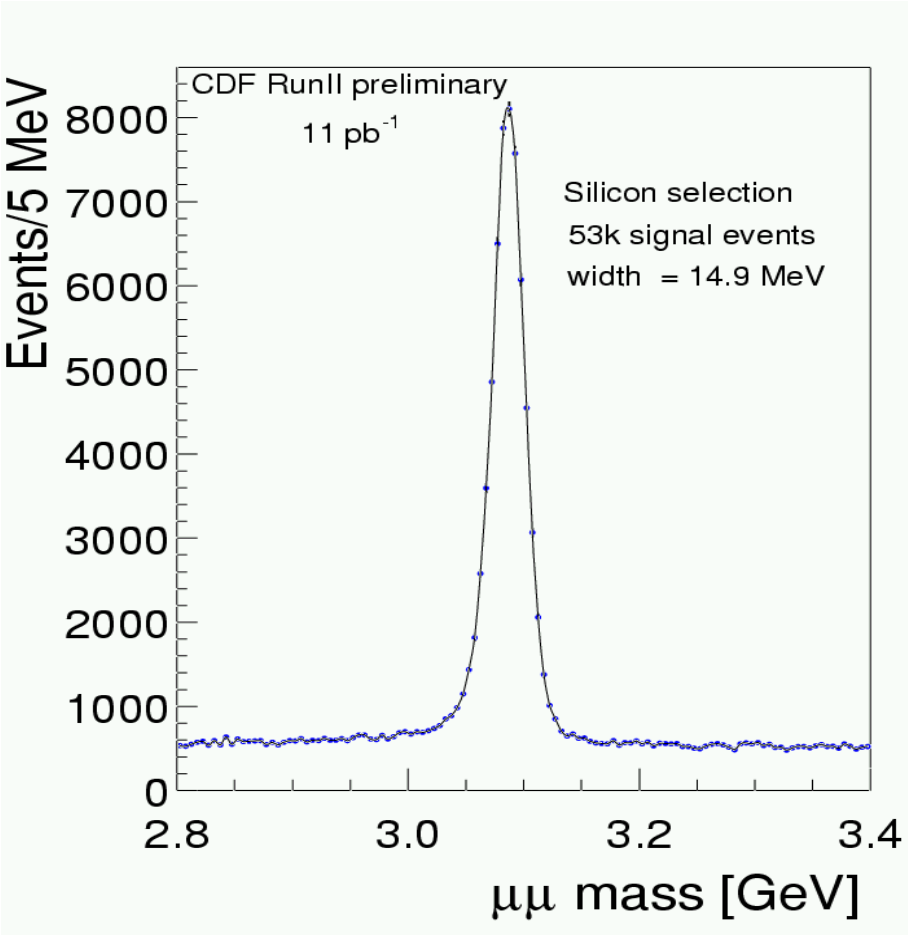
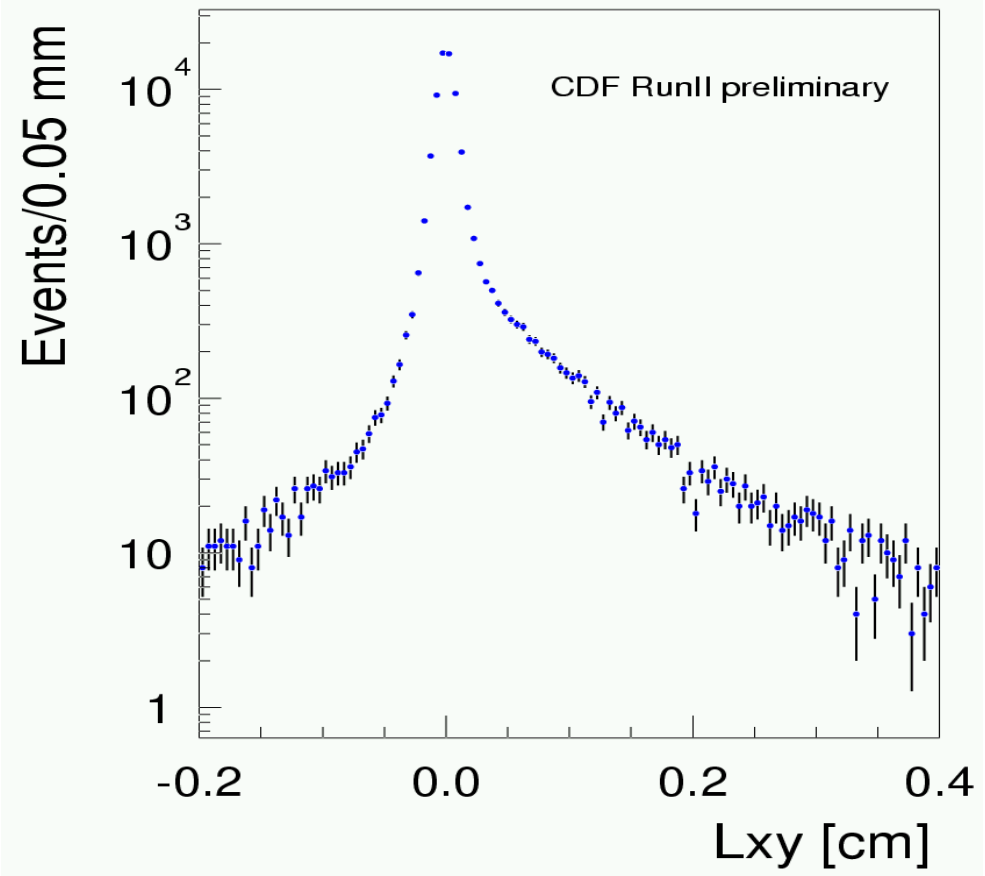
- Continuous improvements to tracking, understanding of Silicon, etc.





Require good muon stub match, at least 3 Silicon rφ hits, σ(Lxy) < 100μm

Tracking: Energy loss and B field

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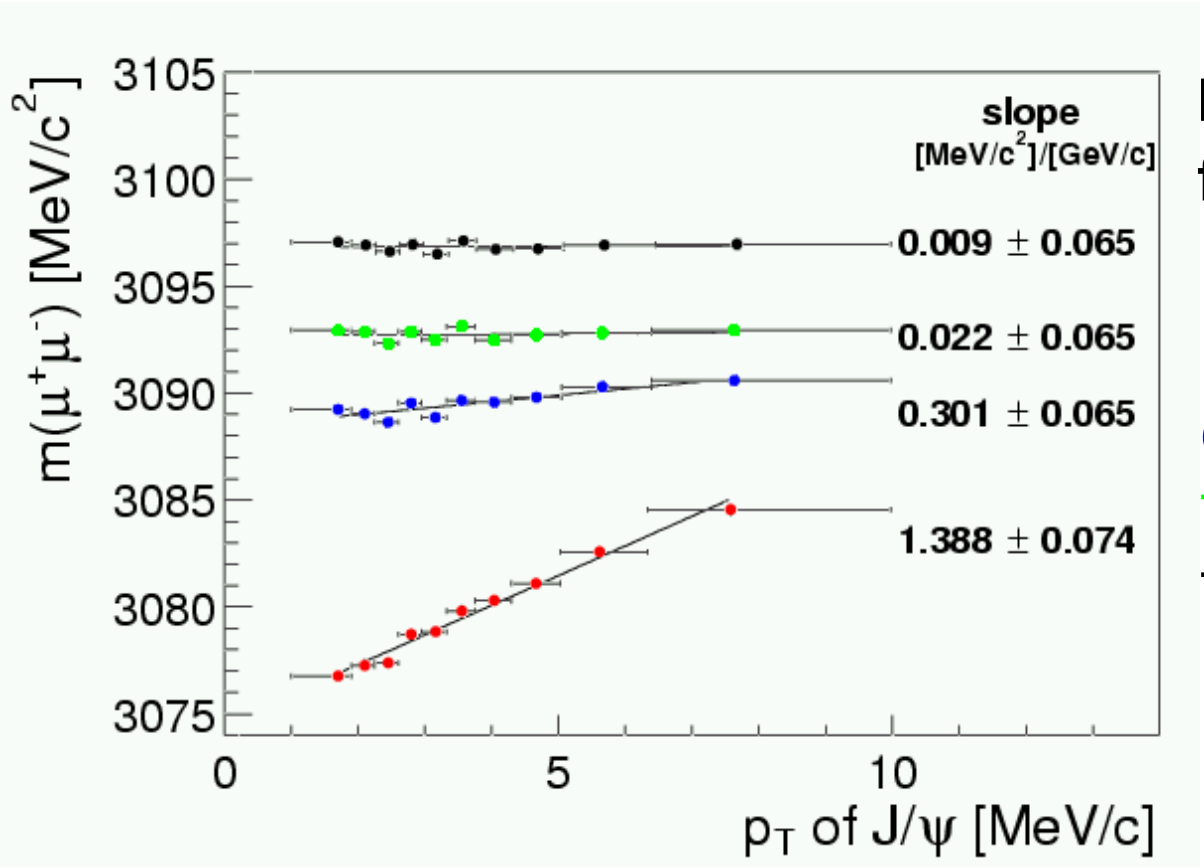
- For mass measurements, need excellent understanding of energy loss and Magnetic Field
- Tune with J/Ψ...



Reconstructed ψ mass as function of p_t

No corrections applied

Geant energy correction

Tune material

Tune B field scale

Tracking cont.

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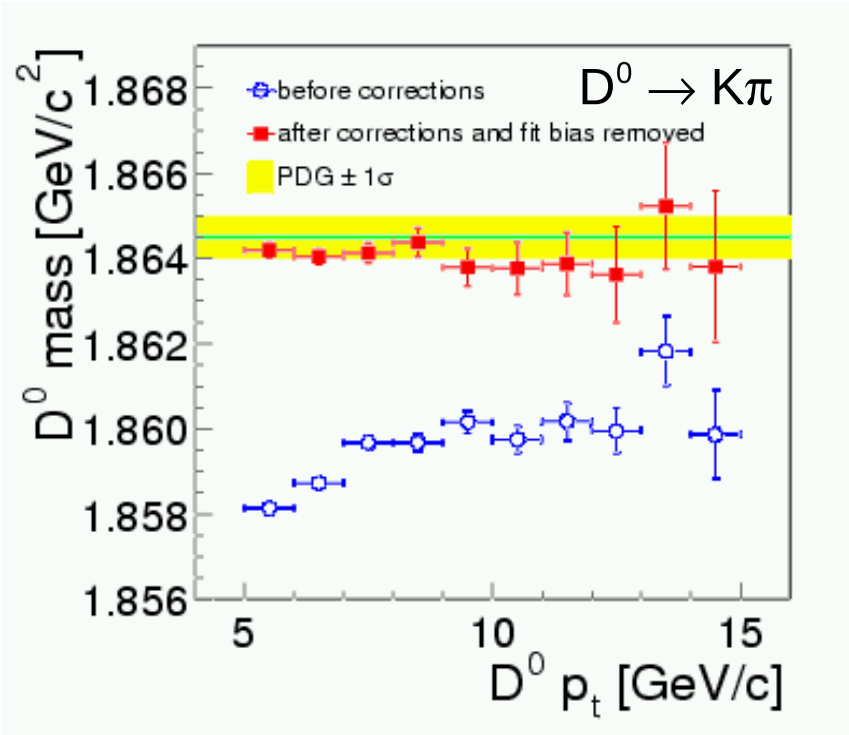
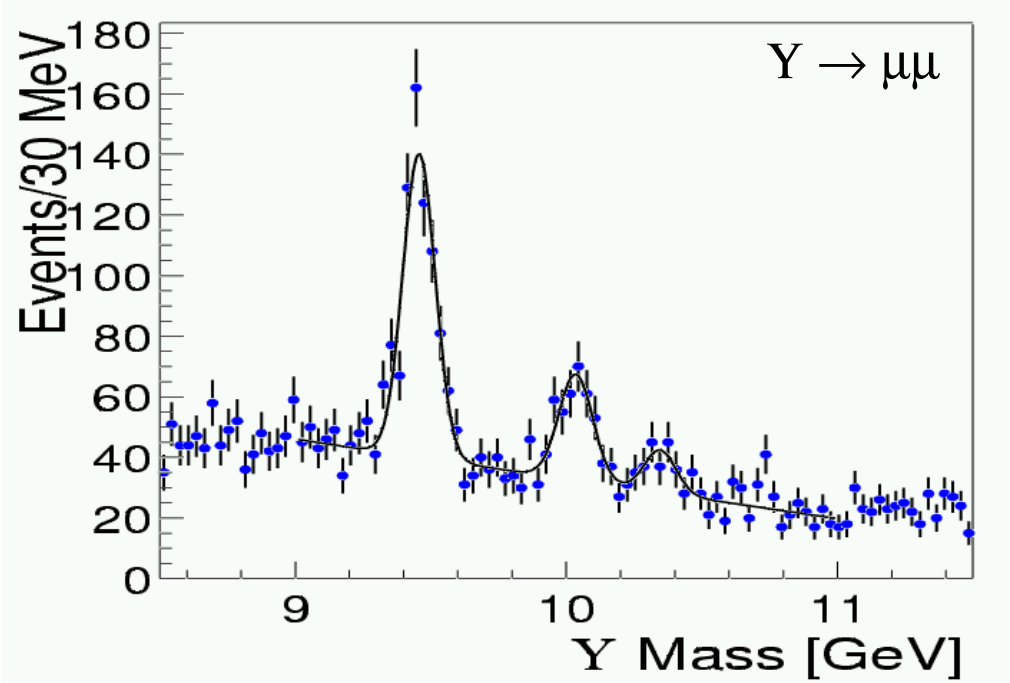
- Verify on independent samples
  - K_S^0, D^0, $D^{\pm}_{(s)}$, $B^{\pm}$, $\Upsilon(1S)$
  - Different momenta/masses
  - Look at p_t dependence, charge asymmetry, ...





CDF	1864.25	± 0.06 (stat)	MeV
PDG:	1864.5	± 0.5	MeV

CDF:	9461	± 5 (stat)	MeV
PDG:	9460.30	± 0.26	MeV

All Hadronic Trigger

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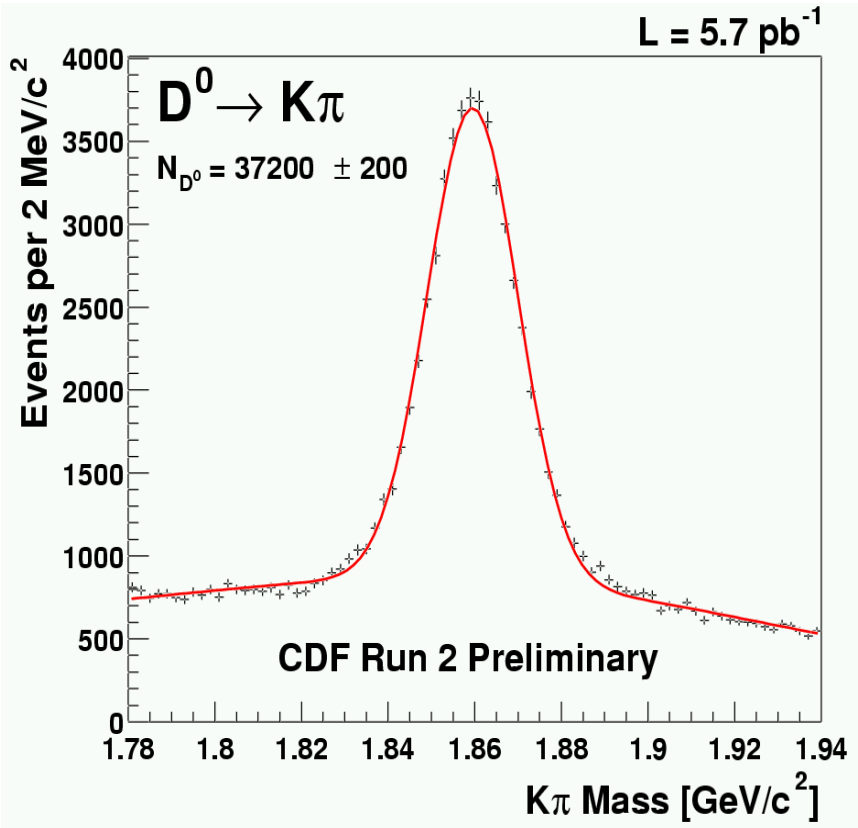
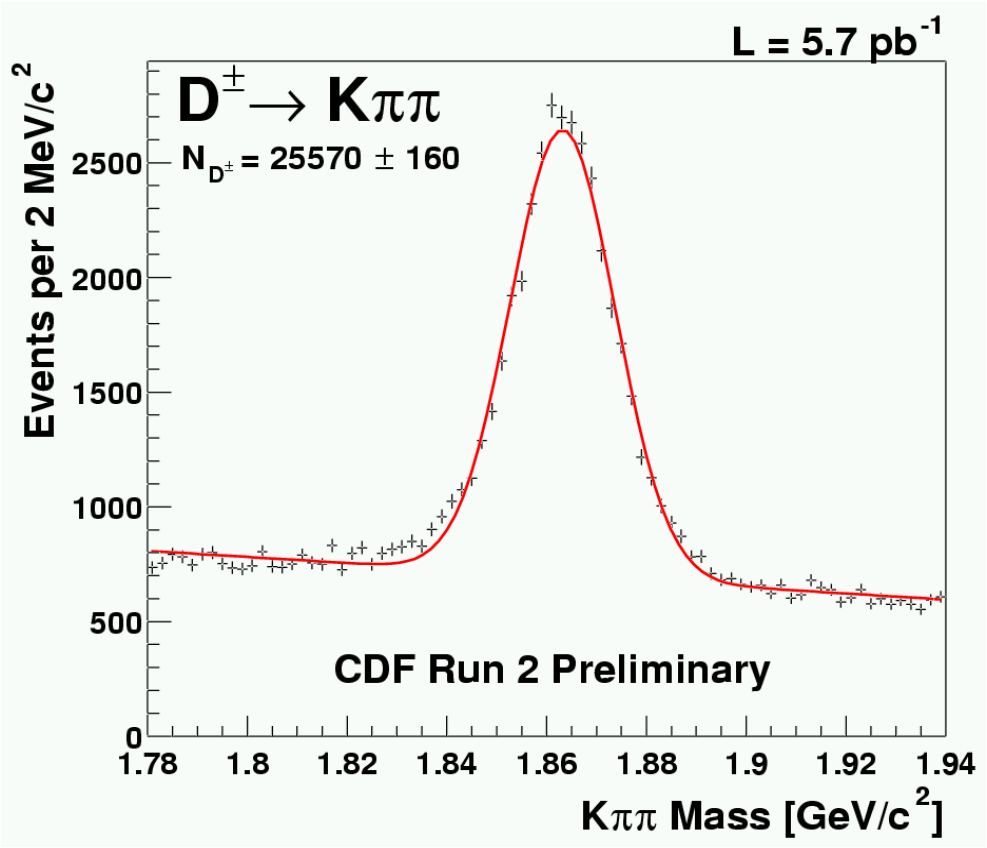
- Continue to accumulate large amounts of charm final states
- Measure cross sections, masses, ...



$p_t(D) > 5.5$GeV



$p_t(D) > 6.0$GeV

B Fraction in D Sample

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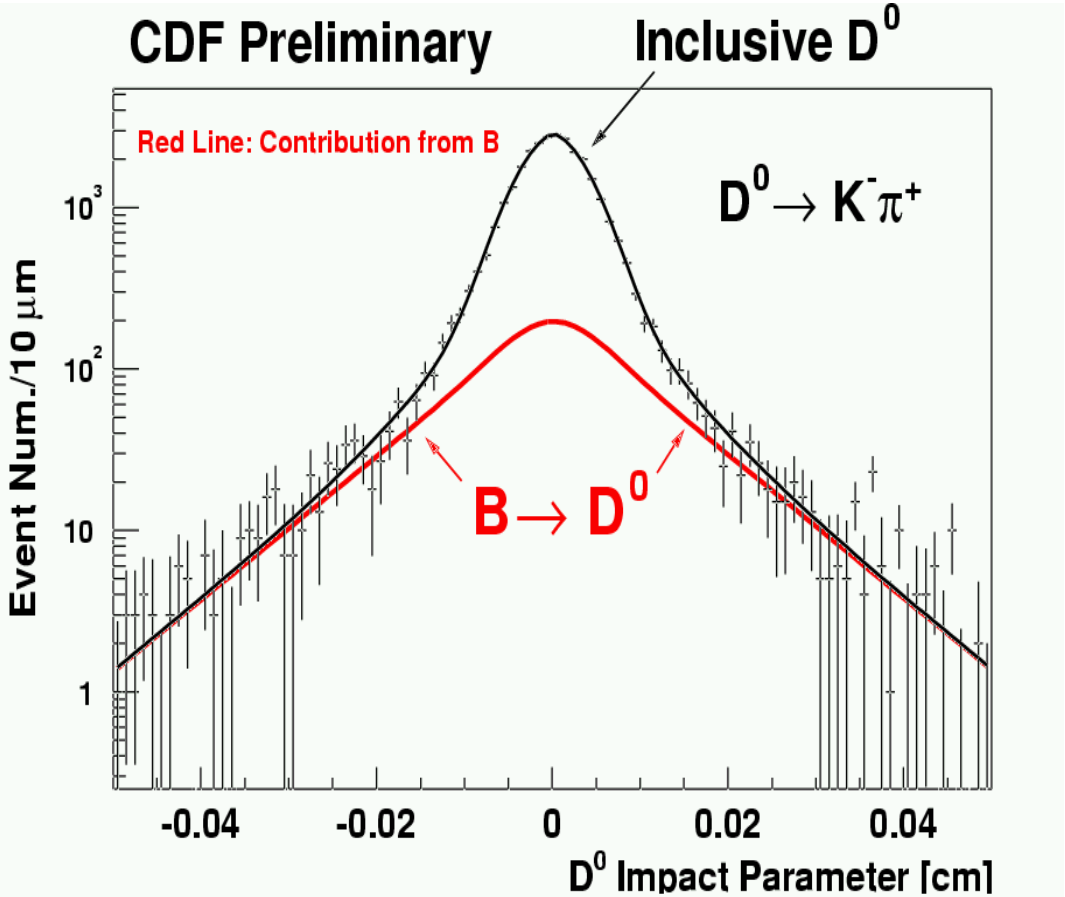
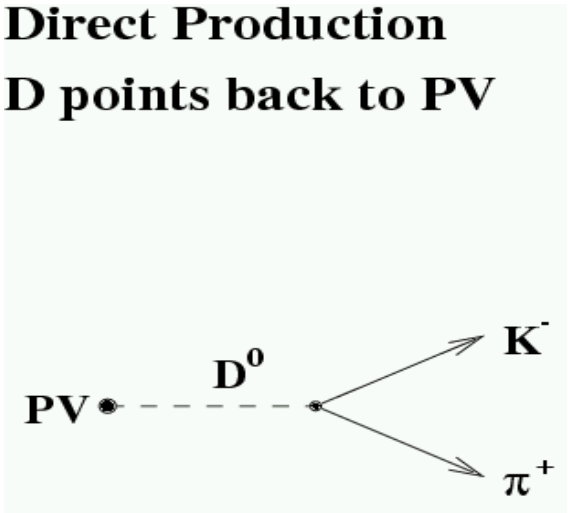
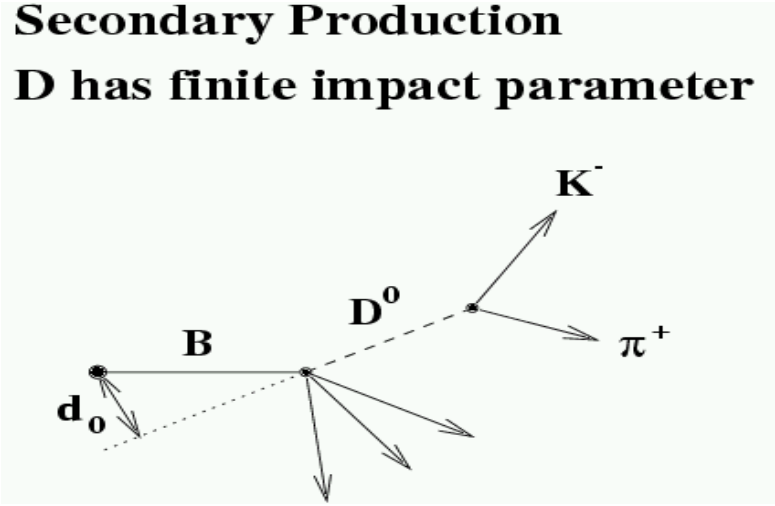
- Use impact parameter distribution to determine prompt fraction







Potential Mass Measurements

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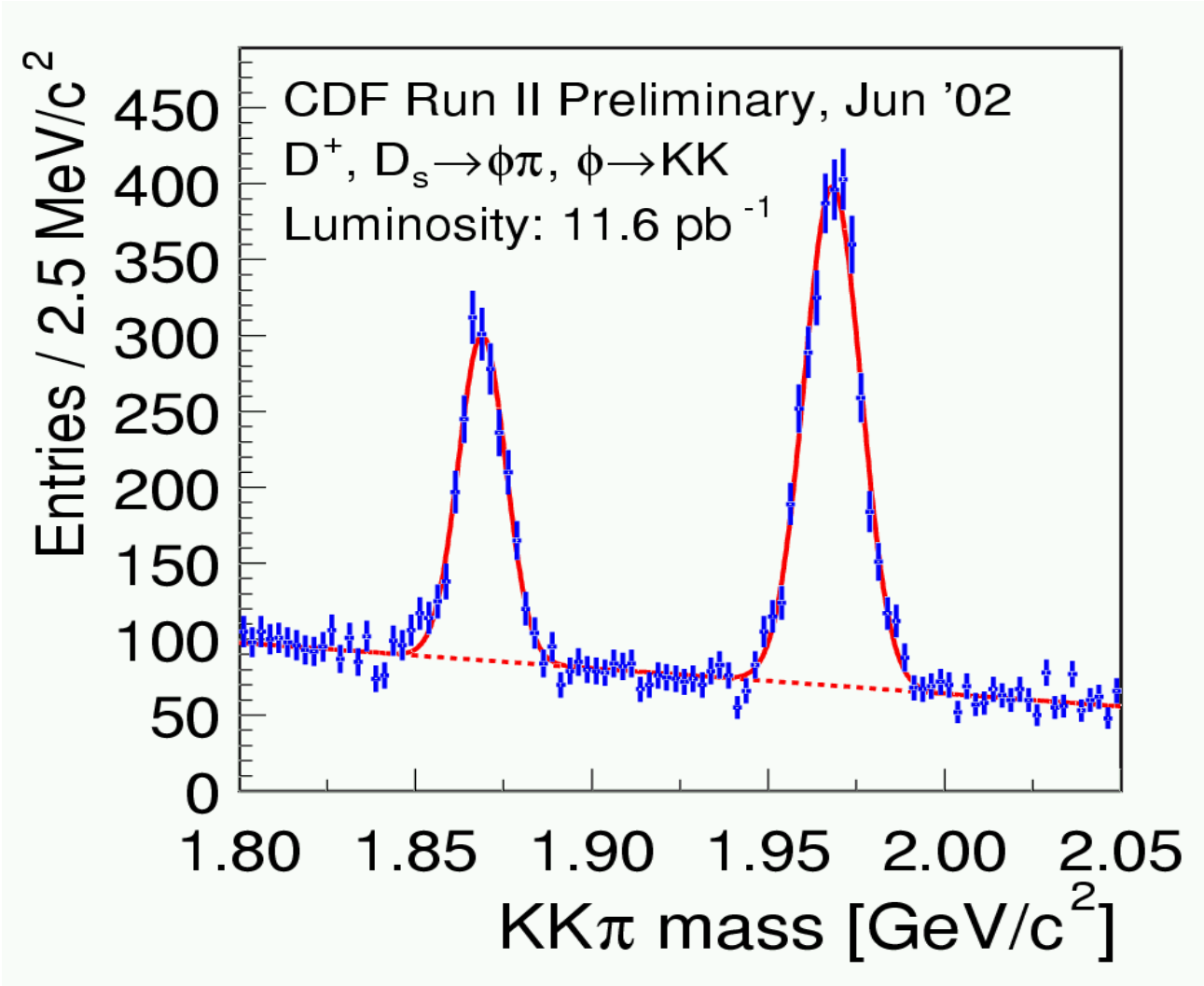

PDG: $m(D_s) - m(D^+) = 99.2 \pm 0.5$ MeV

Exclusive B Decays

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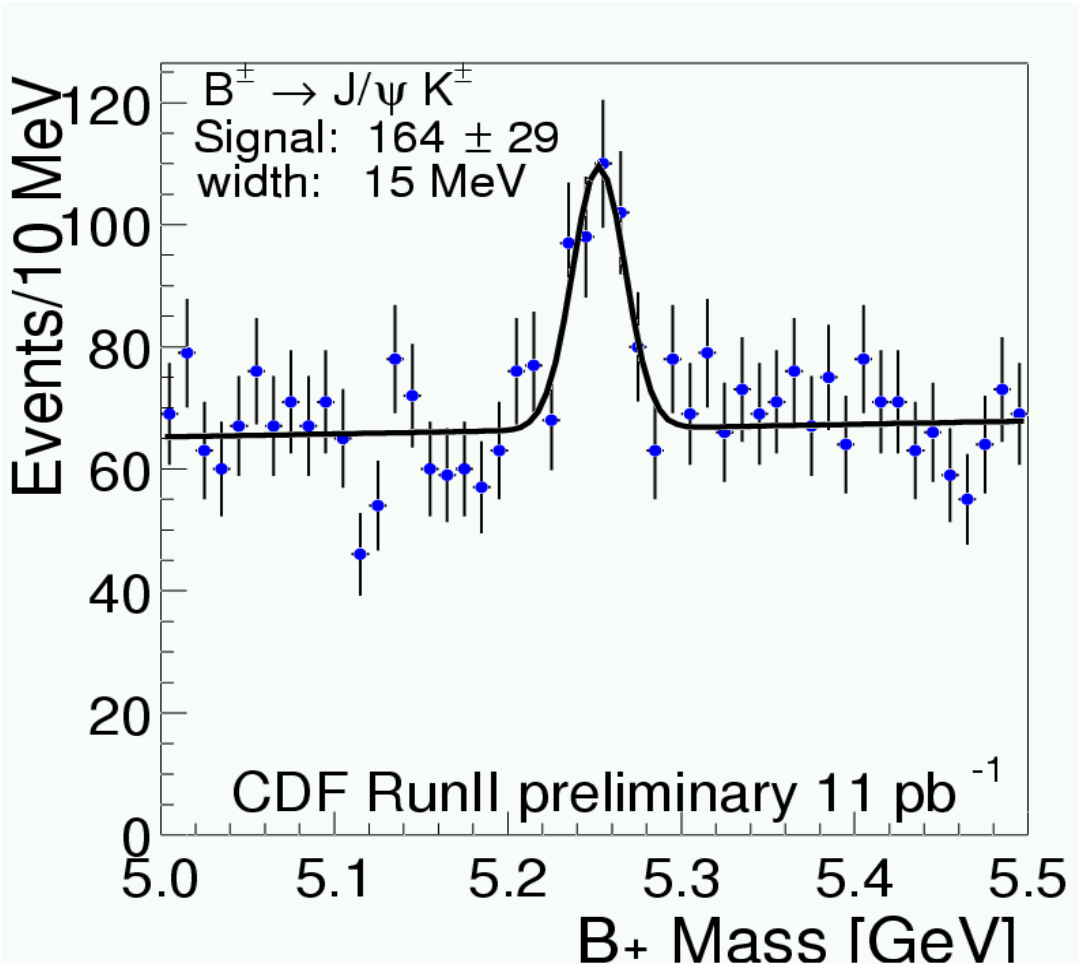
- Exclusive B final states severely statistics limited