Trigsim & Simulated Data

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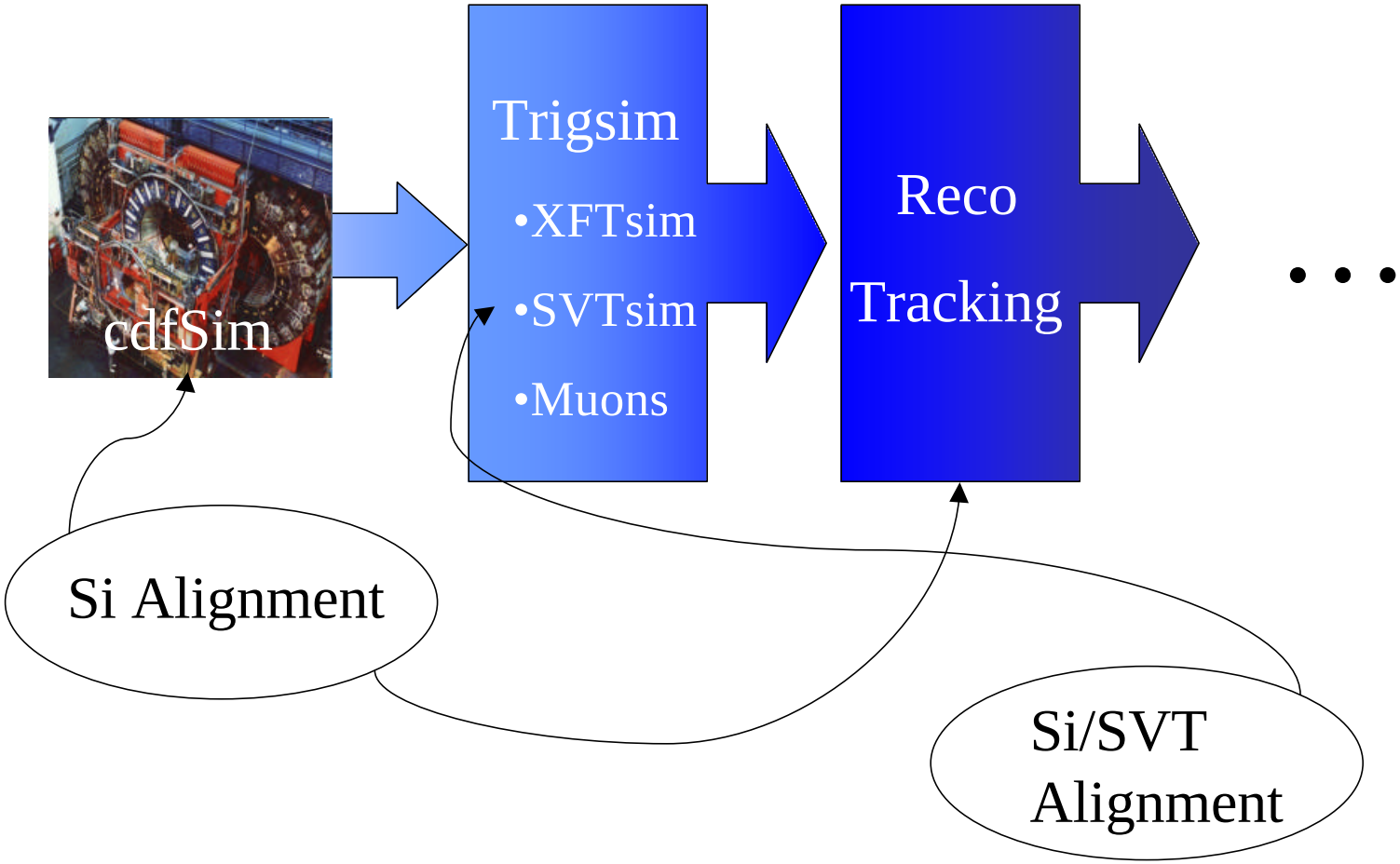
What we want

- Simulate B physics biases (lifetime, momentum etc.) of SVT-based triggers
  - Detailed Si simulation
    - Dead channels
    - Realistic charge deposition
    - Noise
  - Detailed Trigger simulation
    - Accurate emulation of any possible idiosyncrasy

What we put together

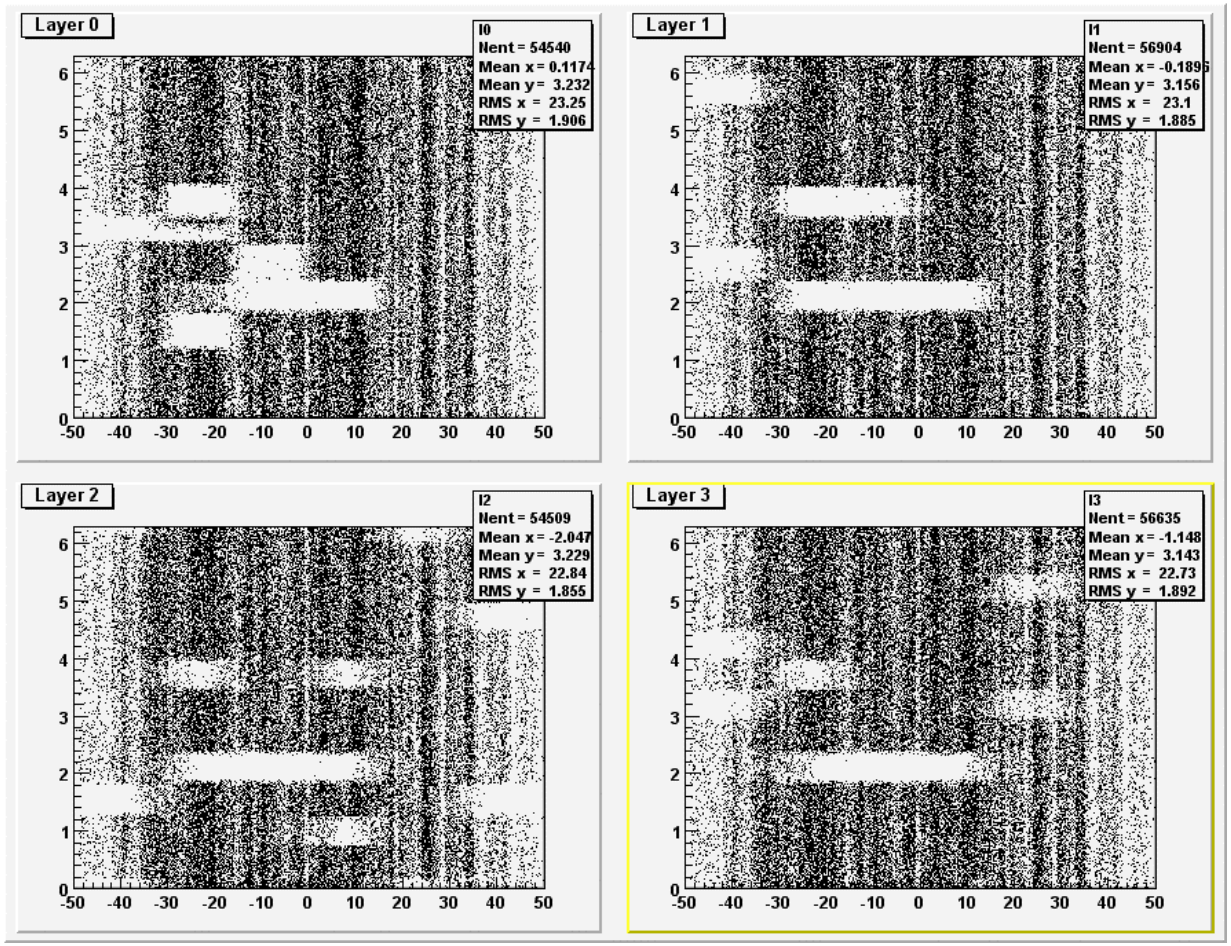


Killing the silicon…

- Pick a Si calibration run#
- Feed SiStripCorrector

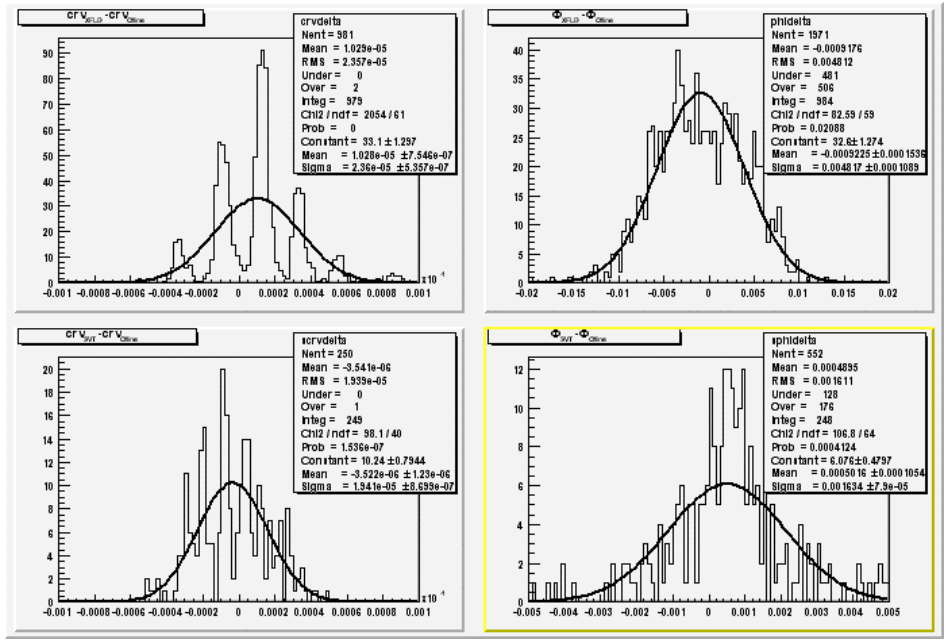
→"Corrected" SIXD

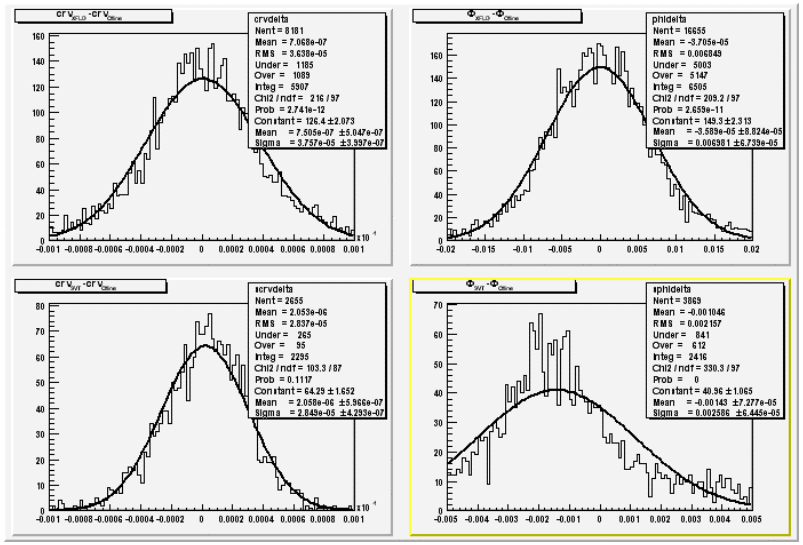
Can feed both tracking and SVTsim!



SVT & XFT Simulations…

- Generate FAKE_EVENT Muons
- Run Tracking & XFTsim/SVTsim
- Match offline tracks to XFT/SVT
- Compare matching bias/resolution with real data

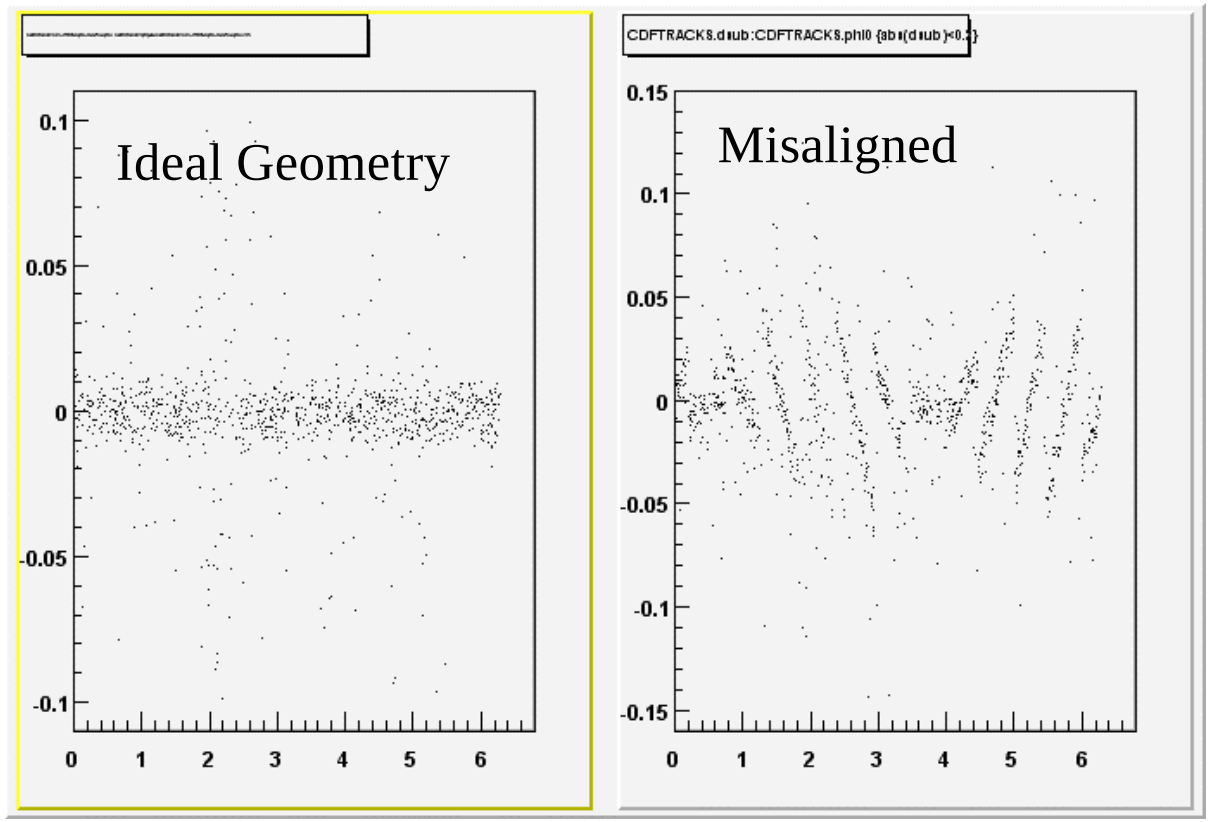




	XFT c σ/δ (10^{-5})	XFT ϕ σ/δ (10^{-3})	SVT c σ/δ (10^{-5})	SVT ϕ σ/δ (10^{-3})
SIM	2.36/.1	4.8/0.9	1.9/-0.3	1.6/.5
REAL	3.7/.07	6.9/-.04	2.8/.2	2.5/-1.4

Alignment (ouch!)

- Generate FAKE_EVENT Muons
- Run Tracking & XFTsim/SVTsim
- Feed alignment table to BOTH cdfSim and Tracking
- Compare d vs ϕ



#$^&%$!!

Apparently Geant keeps the default geometry instead of being updated when a new geometry is fetched from DB

So far…

- Killing the silicon works (we didn’t need proof from the beam division)
- Plenty of inconsistencies between data and sim
- Major problem with Geant geometry when simulating misalignment!
- Need better automation for dynamically loading misalignment/dead strip maps/trigger configuration