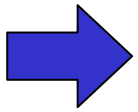
Beam Tilt Study

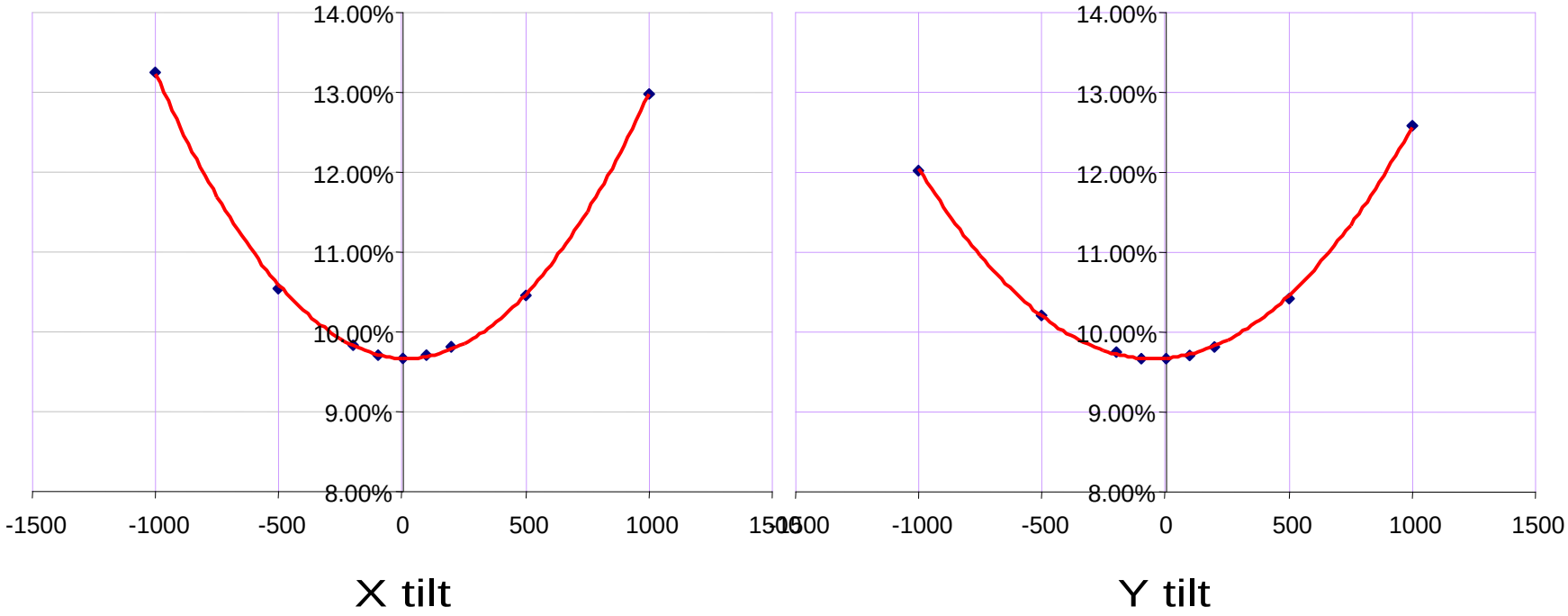
- SVT special runs (142000,142009)
- Simulate arbitrary beam tilt
  - Use COT matched tracks
  - Use z from COT
- Plot impact parameter tails vs. tilt angle
- Plot efficiency turn-on vs. true impact parameter



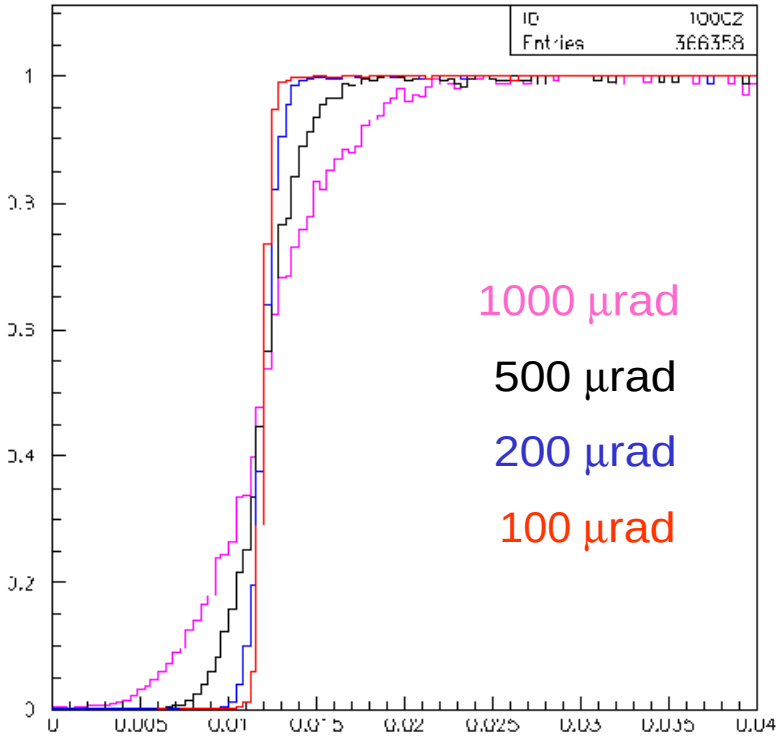
We can probably stand ± 300 μrad and maybe more!

Impact parameter tails vs. beam tilt

fraction of tracks with d > 120 μm



Impact parameter cut turn-on vs. beam tilt



- Denominator:
  - all COT matched tracks
- Numerator:
  - tracks passing d cut
- X-axis:
  - true impact parameter

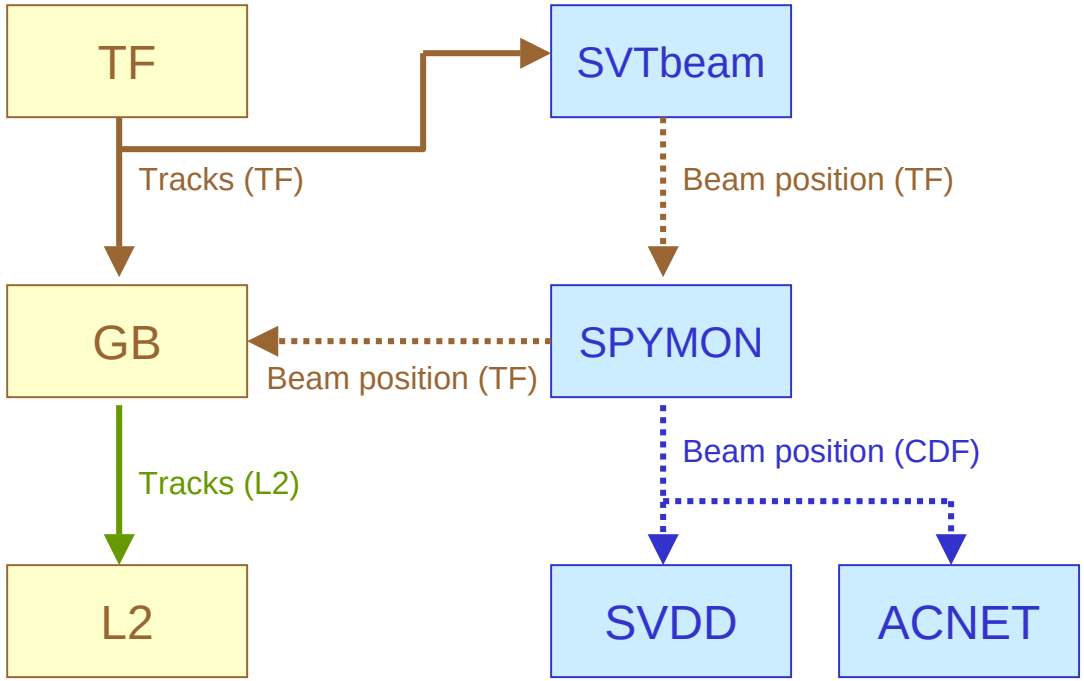
SVT coordinate systems

1. Track Fitters
   - Centered as close as possible to beam
   - Does not change from store to store
   - SVT arbitrary (not visible from the outside)
   - Affects efficiency vs. impact parameter

2. SVT track list to L2
   - Dynamically centered on beam (~ 30 s delay)
   - This is what we cut on at L2

3. Beam position to ACNET
   - Centered on CDF coordinate system
     - As defined by COT tracking in L3

SVT coordinate systems



(TF) = Track Fitter coordinate system
(L2) = Level 2 coordinate system
(CDF) = CDF coordinate system

Issues we need to address

1. What is the official SVT tolerance for x, y, dx/dz, dy/dz?
2. Do we really need to set up a special start-of-store procedure for SVT?
3. Can we make the TF frame the same as the CDF frame?
4. Is L3 tracking the right benchmark?