



Silicon Track Trigger

WBS 1.2.5

Ulrich Heintz

Boston University



Silicon Track Trigger

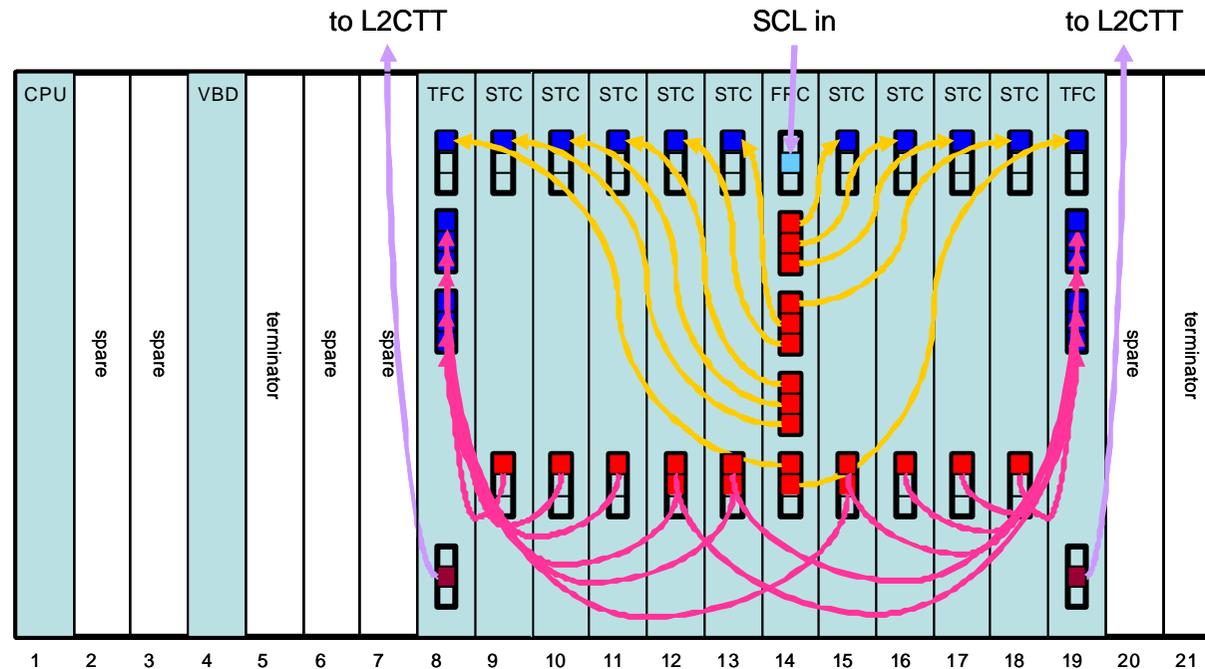
- overview
 - ◆ Run 2A STT in production now
 - ◆ additional boards are required for Run 2B
 - existing designs (except for one board)
 - second production run using the same vendors
 - ◆ fiberoptic hardware for additional channels
 - VTM, splitters, fibers
 - ◆ firmware and software modifications
 - ◆ crates, racks, power supplies do not require modification



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- run 2A STT
 - ◆ inputs: 432 axial silicon strip detectors
 - ◆ 6 VME crates – each covering 2£30° in f

- 1 FRC
 - 9 STCs
 - 2 TFCs
- per crate

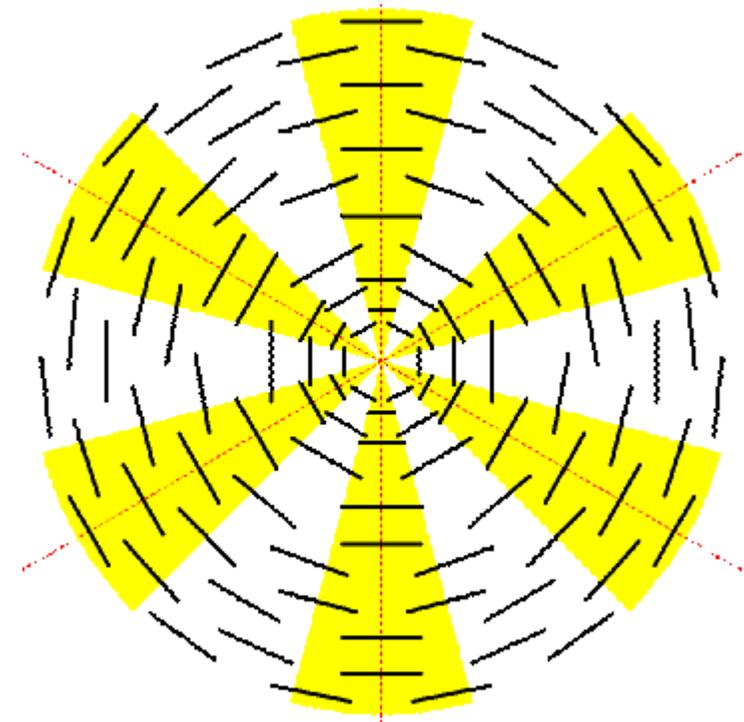




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- run 2B SMT

layer	Readout units		
	f	z	total
0	12	12	144
1	12	6	72
2	12	4	48
3	18	4	72
4	24	4	96
5	30	4	120

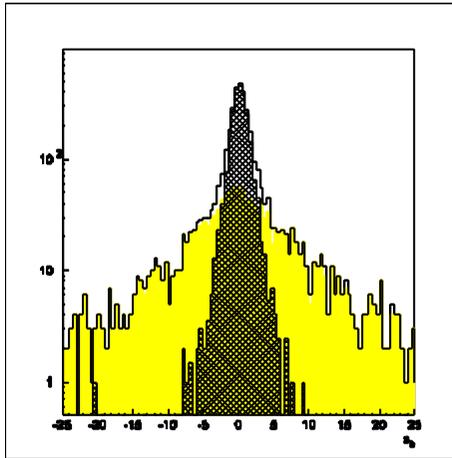


Run 2A 432 9 STCs/crate
 Run 2B 552 12 STCs/crate
 w/o layer 4 456 10 STCs/crate

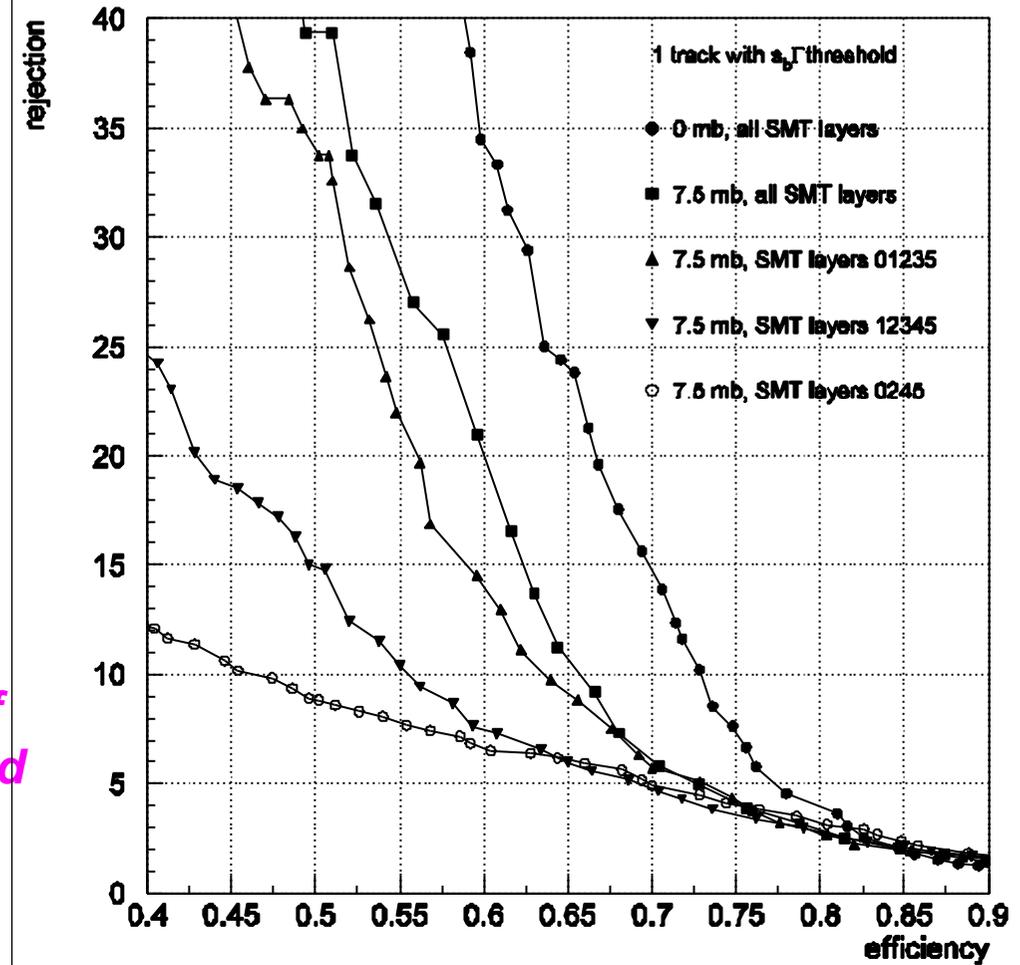


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- run 2B simulations



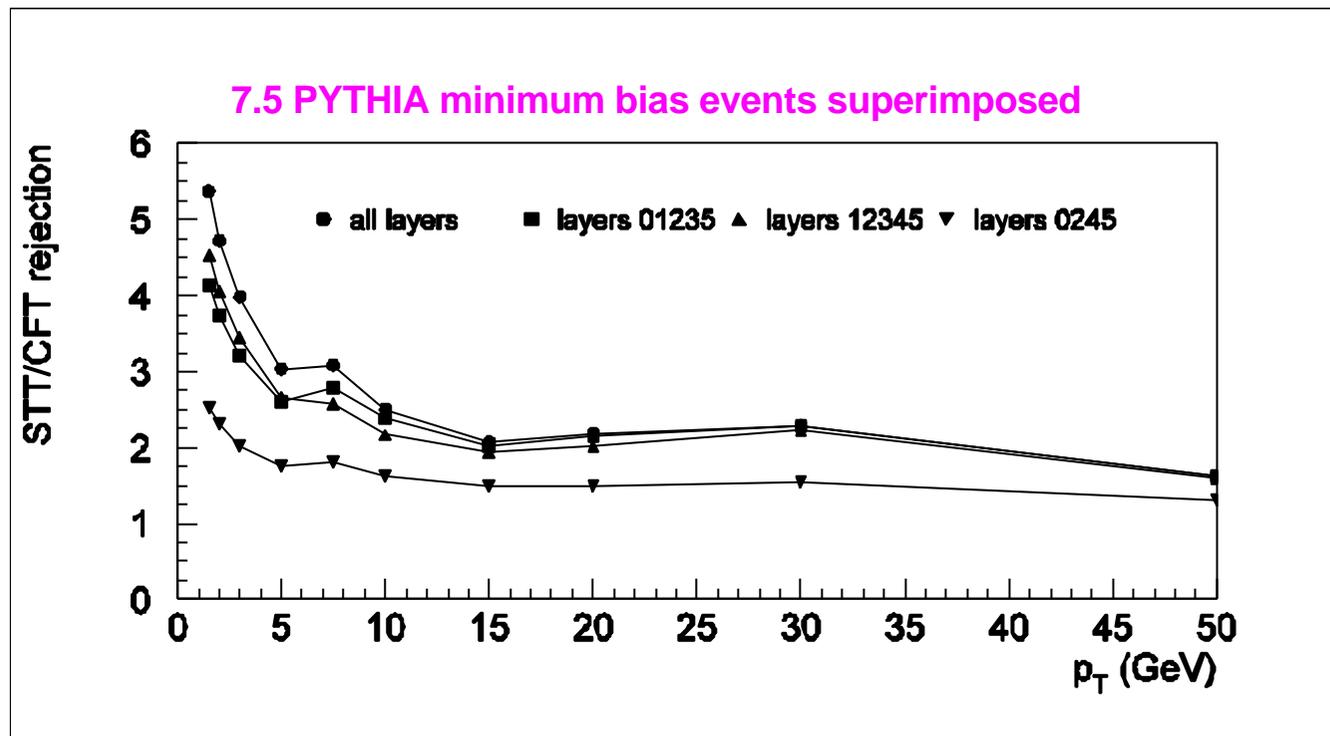
rejection of events with light quark jets ($Z \rightarrow qq$) versus efficiency for $WH(\rightarrow bb)$ events if one STT track with $s_b > \text{threshold}$ is required





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- run 2B simulations

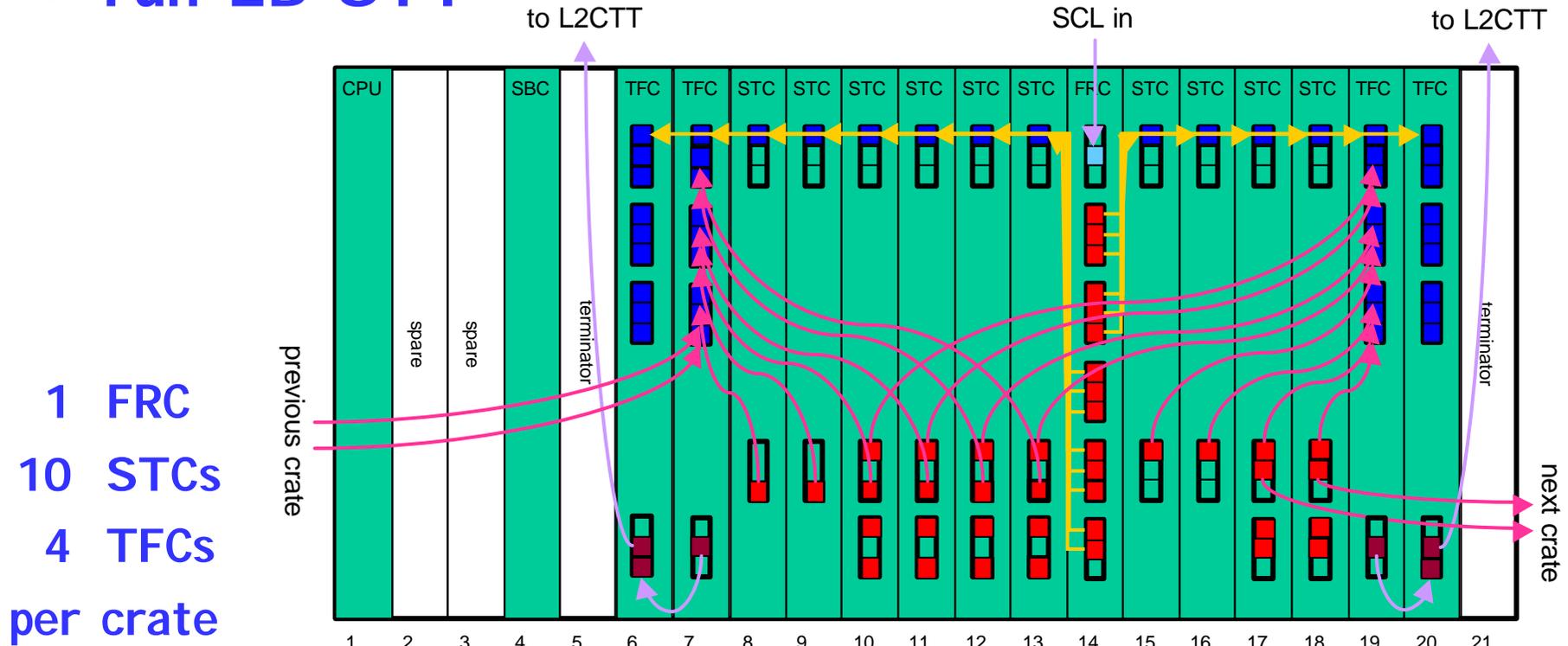


rejection of fake CFT tracks when a matching STT track with $p_T > 10$ GeV and at most one missing layer is required



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- run 2B STT





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- high risk items
 - ◆ firmware updates
 - firmware on STC and possibly other cards will have to be updated to account for any changes in the input and/or algorithms.
 - firmware updates may also be required if redesign is required because parts have become obsolete.
 - →large contingency (100%)
 - ◆ VTMs
 - 850 nm optical transmission components are about to become obsolete.
 - →order extra spares
 - →order as soon as possible



Silicon Track Trigger

- **institutional responsibilities**
 - ◆ **Boston University (Ulrich Heintz)**
 - production of motherboards, STC, link boards
 - STC firmware updates
 - technical commissioning
 - ◆ **Columbia University (Harold Evans)**
 - production of BC
 - technical commissioning
 - ◆ **Florida State University (Horst Wahl)**
 - software updates
 - technical commissioning
 - ◆ **SUNY Stony Brook (John Hobbs)**
 - production of TFC and update of TFC firmware and DSP code
 - design and production of hotlink repeater
 - technical commissioning
 - ◆ **Fermilab**
 - procurement of VTMs, splitters, fibers
 - installation