

# FastSim Planning for Summer Production

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CSG meeting  
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# Goals

- Answer remaining detector geometry issues
  - Forward PID, backwards Emc (verification)
  - physics reach run left till fall/winter 2010
- Include all backgrounds
  - Bhabhas and pairs
  - currently  $\sim 10X$  slower than Feb. production
- 10X Feb. production statistics in key analyses
  - Only study  $B \rightarrow K_{\nu\nu}, B \rightarrow \tau\nu$
  - only 6X increase in cpu-hours  $\Rightarrow$  must improve efficiency

# Main geometry issues

SVT Layer 0	Striplets @ 1.6cm if background is acceptable
SVT N Layers	5 + L0. Performance does not suffer. Redundancy important
SVT - DCH radius	Fixed by cryostats to allow easy installation
Backward EMC	Inexpensive device bringing 8-10% sensitivity improvements for $B \rightarrow \tau \nu$
Forward PID	Still open. Physics gain about 5% in $B \rightarrow K^{(*)} \nu \nu$ . Either very expensive or unproven technically. Extra material in front of EMC
Absorber in IFR	Optimization done. Reuse yoke.

# Open Development Issues

- Svt dE/dx
  - prototype working, ready to commit in few days
- reco-based PID lists for leptons, protons
- ChargedHadrons list to filter (pair) electrons
- Emc timing model
- Volume navigation
  - score multiple hits from tight curlers
- Hadronic BReco
  - 'duplicate' candidates, smeared  $\pi^0$  modes
  - choose smaller subset of modes to reduce time
- Background Validation

# Background Validation

- Pair backgrounds
  - Fast/Full agree on generated pair rate
  - Detector (cluster) effects not fully understood
  - Generator/theory validation could be improved
- Rad Bhabha (machine) backgrounds
  - Major Fast/Full disagreement shown in March
    - rates differ by ~factor of 10
  - Detailed study done since are puzzling
    - discrepancy appears at particle level (all from FullSim)

# Schedule

- Address outstanding issues in next 6 weeks
  - 3 FastSim meetings roughly outlined
- Code freeze immediately after Elba meeting
  - Validation results presented at Elba