fastsim studies/MC production planning

- Goal – perform physics studies with fastsim, with reasonable generic samples and BG conditions in 2012 → moving towards Physics Book
- TDR – as previously announced, we will not produce a dedicated Physics TDR, but rather single chapter for the Detector and Accelerator TDRs (see discussion next session)
- Physics Book – next big milestone: time scale of Physics Book is end of 2013 – we want to have the most and best possible knowledge of SuperB physics at that point
- Get going now (again) on with fastsim
- Note: some analyses can be done using signal simulation
  - small numbers of events
  - do not need MC production

fastsim studies/MC production planning

- fastsim: MC production and analysis are closely linked – output of fastsim production is analysis level ntuples
  - the means analysis code runs in the Production Executable
  - Analysts must be involved in getting Production Executable ready, i.e. from early on in the process
  - need to know which analyses, tools needed, backgrounds, generic samples, etc, to get Production process started
- Call to analysts: about 1 month ago, we asked for people interested in doing fastsim studies to come forward
  - a number of you have done so (thanks!)

Call to analysts: asking for following info

1. Broad outline of the analysis
2. What does extrapolation from Babar (or other experiments) tell us, if anything?
3. What additional knowledge will be gained from a fastim analysis?
   - e.g., it's possible that best approach is a combination of fastsim plus Babar extrapolation
   - will require knowledge of fastsim's limitations
4. Tools - what specific tools are crucial to the analysis? For example:
   - hadronic or semileptonic tagging (recoil analysis)
   - PID selectors
   - flavour tagging
   - special generators
   - other tools

Additional considerations: generic BG events

- Potentially very large numbers of generic BG events could be needed (an initial poll in September yielded requests for 130 billion events)
- Very likely impossible to satisfy every request for generic backgrounds
- We won't know the production capacity until we build a test executable, but order of magnitude ~ 20×10^9 ev/ month
- Each analysis must consider the possibility of focusing on specific sources of the worst backgrounds

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Proposed analyses to date

Name	Channel(s)	Hadronic tags	SL tags	Notes	WG
Elisa Manoni	K(*)nunu	yes			Rare
Steve Robertson	B->Xs l+l-	yes			Rare
Wenfeng Wang	B->Xs gamma	?	?		Rare
Alejandro Perez			yes	support for SL tags	Rare
Marcello Rotondo, Valentina Santoro	B-> mu nu, e nu	yes			Rare
Guglielmo De Nardo	B-> tau nu	yes			Rare
Alberto Cervelli	tau -> mu gamma				tau
Marcin Chrzaszcz	B -> K phi phi				CPV & mixing

Timeline: one possibility

- Working backwards: when would we like to have analysis ntuples ready? In time to produce some results for Elba?
  - ntuples ready by mid-May 2012?
- Assume 1.5 months production running (~30 billion events)
- Technical time for release building, validation, etc: 4-6 weeks (?)
- All this would imply freezing analysis code around mid-February
- This is just a possible scenario, not even a proposal. Let's discuss...