



Simulation Production Requirements of the Physics working groups

30th November – 4th December 2009
LNF Frascati

[With annotations briefly describing the state of
code inclusion in the FastSim production scheme]

Adrian Bevan



WG1: CPV / NP in Mixing

AB.Chih-hsiang, Thomas

- We would like to see $\sim 1\text{ab}^{-1}$ of generic backgrounds for:
 - $\sin 2\beta$ from Charmonium: [Included]
 - Inclusive J/ψ background
 - Two Body: [To be finalised]
 - Generic background (for general re-optimisation+Xchecks)
 - $3K^0_S$: [To be written]
 - Continuum background: For TDCPV / Dalitz (?) analysis.
 - KKK_S : [To be written]
 - Generics for TDCPV / Dalitz analysis.

- We don't anticipate the need samples larger than this to make realistic estimates of sensitivities.

- We do see the need for some work on tagging/BFlav samples [need manpower for this]. Current algorithm is not optimal.

- Generic Background Requests for the following modes:

$$B \rightarrow K \nu \bar{\nu}$$

$$B \rightarrow \tau \nu$$

Hadronic Recoil

Semi-leptonic Recoil

- Maybe also $K^* \ell \ell$.
- $\sim 1 \text{ ab}^{-1}$ would be useful to start evaluating sensitivities with 'realistic' backgrounds...



WG3: τ and polarisation

Alberto, Oscar, Mike, Paride

Tau Physics MC production requests

A.Lusiani – Pisa

[To be finalised/written]

LFV background events

- ◆ $\sim 100 \text{ ab}^{-1}$ of bb, cc, uds, di-muons and Bhabha (also two-photon if available) are needed for significant improvements of sensitivity studies using *BABAR* $\sim 1 \text{ ab}^{-1}$ samples
- ◆ smaller bkg samples ($0.01 - 1 \text{ ab}^{-1}$) might be used for detector optimization studies, polarization related studies
- ◆ would like to get half events with +100% electron beam longitudinal polarization and half with -100%

Other samples

- ◆ small LFV signal samples will be privately produced
- ◆ not asking now samples for lower priority investigations ($g - 2$, EDM, CPV)
- ◆ not asking yet any sample for recent new topic of precision EW tests relying on polarized beams



WG4: Charm

Brian, David, Ikaros

- 1 Mode almost 'production ready'. Intend to include this for the January production.
 - 1ab^{-1} of generic background would be extremely useful.

[To be finalised]



WG5: Spectroscopy and exotics

Riccardo and Antonello

- As with previous studies, WG5 needs only small samples of MC.
 - No SP requests ...