

# EvtGen

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# Overview of EvtGen

- We use EvtGen as default generator for B and D meson decays
  - Decay parameters controlled by EvtGen/DECAY.DEC and PDT/pdt.table
    - >60% B decay BF itemized – rest handed to JETSET for inclusive multibody decays
    - Most parameters can be overridden in user decay file for signal Monte Carlo samples.
  - Models correlations in sequential decays while implementing only the decay amplitude at each node in the decay tree.
  - Interface for jetset configuration

# SP4/SP5/SP6 history

- Significant changes made to models and decay tables between SP4 and SP5
  - Retune of charmless meson inclusive production ( $\phi/\eta/\eta'/\omega$ )
  - $D^*$  production in  $B\bar{B}$ /continuum
  - New CP model / generic helicity amplitude model
  - Many exclusive BF updates
  - Photos turned on for all final states..
- Essentially no changes made between SP5 and SP6.

# Known code problems..

- Lineshapes
  - Still have problems in SP5/SP6
  - **Max Baak has identified and fixed these in recent SP5/SP6 releases – but the fix is off by default**
    - Add “SP6LSFIX <part-name>” to your decay file if you want to test these
- Confusing B0 vs anti-B0 arguments in SVV\_HELAMP model

# (Known) Needed Decay.dec updates

- Pdg2004+ICHEP
- Proton inclusive production (Spectra talk)
- Semileptonic BFs vs spectrum
  - Current spectrum tuned to results on 1fb-1 of CLEO data..
  - D SL decays?
  - Semileptonic talk
- Consistency of jetset parameters needed to get light hadron production right vs those need for  $b \rightarrow s\gamma$  multiplicity
- Anyone see that Photos is doing the wrong thing?

# Updates to be made in early fall

- Will seek advice from AWGs on what should be fixed in decay files.
  - Timing w.r.t SP7 or SP8 still to be determined
    - Should SP7 = SP6 = SP5?
    - Code maintenance an issue
  - Getting inclusive distributions right is likely to be tricky – many more measurements than knobs to turn.
- How to manage ProdDecayFiles?