

Some Comments about the Generators

Abi Soffer

Colorado State University

Simulation Workshop, July 12, 2004

Generator Packages and Coordinators

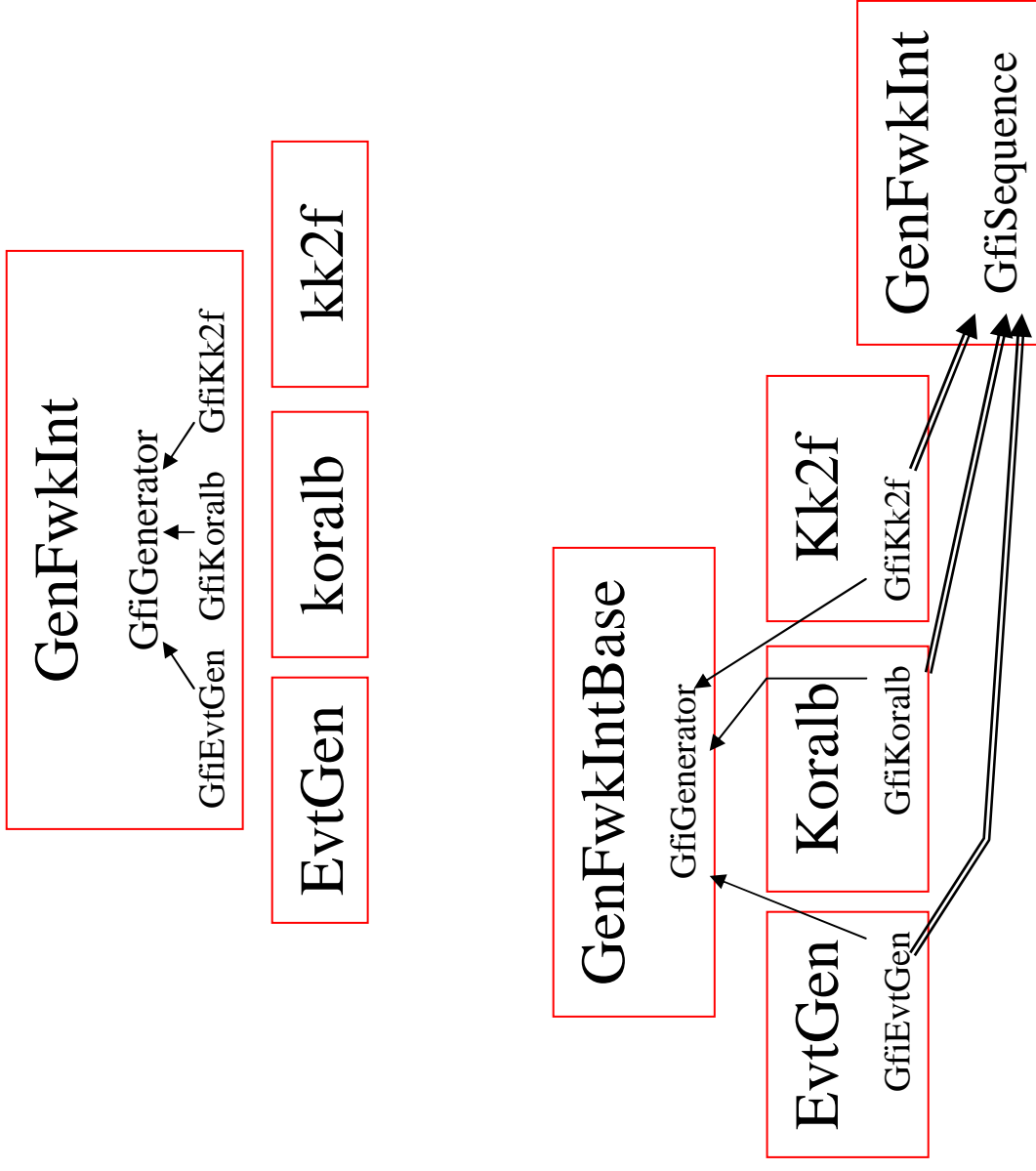
Generator	Process	Coordinator
EvtGen	Decays	David Lange
Jetset	udcs continuum and decays	Brian Petersen
pythia	Decays in $\tau^+\tau^-$ events	Swagato Banerjee
Koralb	$e^+e^- \rightarrow l^+l^-$ (mostly $\tau^+\tau^-$)	Swagato Banerjee
kk2f	$e^+e^- \rightarrow l^+l^-$ (mostly $\tau^+\tau^-$)	Mark Hodgkinson
tauola	τ decays	Swagato Banerjee
gamgam	2-photon	Jamie Boyd
Phokhara	$e^+e^- \rightarrow qq\gamma$	Nicolas Berger
AfkQed	$e^+e^- \rightarrow \mu\mu\gamma, n\pi\gamma$	Vladimir Druzhinin
bhwide	Wide-angle Bhabha	Armin Hauke
bkqed	$e^+e^- \rightarrow f\bar{f}\gamma, \gamma\gamma$	Armin Hauke
Vcs	virtual Compton scattering	Henning Flaecher
hemicosm	Cosmic muons	Fred Kral
diag36	$e^+e^- \rightarrow 4-$ and 6-lepton	Abi Soffer

September Generators Workshop

- Goal: update decay table and particle properties with latest measurements/theory expectations
 - Done every 2 years recently
- Will soon start soliciting from AWGs names of experts on different sub-topics
 - Experts will make HN recommendations that David and I will implement
- The workshop also serves as a reminder to AWGs to think about what else they feel is missing or incorrect in the generators

Update of GenFwkInt Structure

- **Current structure:**
hard to maintain
multiple production
releases. When one
generator changes,
GenFwkInt can be in
conflict with other
generators in the old
release
- **In September:**
Simplify wrapper
modules and move
them to the underlying
generator packages



Decaying Undecayed Particles

- When a particle is not decayed by the generator, it is decayed by jetset (or pythia)
- Makes it hard to control how that particle is decayed. People need to use filters to select the decay they want, which is not always applicable
- **In September:** Use EvtGen to decay undecayed particles (except when EvtGen was the original generator)

New Generators

(new to BaBar)

- Jetset/Pythia has limited knobs for tuning
- We might get more options by adding additional generators
 - Herwig
 - Pythia++: should enable instantiation of multiple instances with different models, but is not ready yet
- New γ generator to be added by Claudia Patrignani