

# Full Simulation

*E.P.*

# Bkg Simulations

- Backgrounds Low level Studies
  - Full SuperB geometry
  - No B physics
- Backgrounds frame production
  - Backgrounds effects on high level quantities

# Low Level Studies

- Production of 100k bunch crossings using the radiative Bhabha generator
- Full simulation chain
- “Standard” SuperB detector geometry
  - To shield or not to shield? (or both?)
- Scan over unphysical parameters for simulation validation

# Unphysical parameters

- Validation of the simulation:
  - comparison of results obtained with different sets of unphysical parameters
  - Geant 4 Max step length
  - Production cuts
- To be agreed with Sub. Det. & Andrea within one / two weeks



# Load on the farm

- CPU time:  
100k Evt requires ~250 day x Core  
(Xeon E5320 @ 1.86GHz, 3723.92 BogoMips)
- Disk space:  
27 Gbyte (with tungsten shields)  
55 Gbyte (without tungsten shields)

# Proposal I

- 100kEvt x (Shielded + Unshielded) x 5 sets of unphysical parameters = 1MEvt
- ~ 2500 days x Core
- ~ 410 GBytes disk space

# Proposal II

- 100kEvt x [ Shielded x 5 sets of unphysical parameters + Unshielded ] = 0.6MEvt
- ~ 1500 days x Core
- ~ 190 GBytes disk space



# Schedule

- Code & geometry freeze:
  - Before christmas
- Production start
  - Beginning of 2010
- Post processing and analysis start
  - Mid of January 2010



# Backgrounds frame injection

	Generator	Validated	Injectable?
Radiative Bhabha	Available	Almost bug spotted by Gigi last week	Yes (neutron?)
$e^+e^-$ pair production	Available (to be cleaned up)	yes	Yes... but
Elastic Bhabha	~ Available, (to be interfaced with Bruno)		yes
Beam gas	Available	yes	Yes (neutron?)
Touschek	Available ( sample size? )	yes	Yes (neutron?)

# Background injection

- Charged particles and photon injection from Radiative bhabha done and tested
- Production environment in place
- Neutron issue: how to superimpose neutron effects simulated with Bruno in the fast sim?  
Strategy is highly dependent on the sub detector, hard (in my view) to find a general strategy.

# Background injection

- Agreement at SLAC that non beam-strahlung events will be injected with an “occupancy map” strategy
- We have to dress the concept with all the details (Very sub detector dependents)



# Goal for February prod

- Complete validation of the simulation of beam strahlung (pardon Radiative Bhabha) bkg.
- Efficiency map for the SVT Layer0 for pairs production bkg