

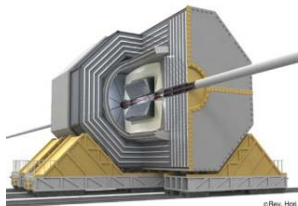
Plan of Jupiter data production

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ILD Optimization WG

Updates of the presentation
at ILD meeting, 7 March, at Sendai



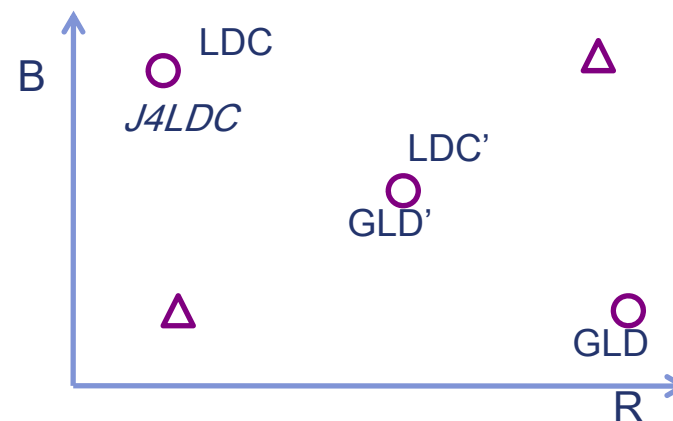
Plan to Warsaw

■ Goal:

- ◆ Check consistency between LDCPrime and GLDPrime
- ◆ Obtain physics performances vs detector parameters relation.

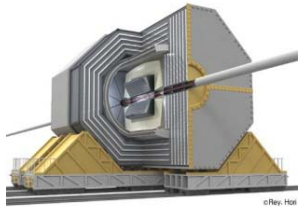
■ Geometries

- ◆ GLD, GLDPrime, J4LDC,
- ◆ Other variants → if possible
 - Different BR2
 - VTX radius, IT configuration



■ Processes

- ◆ resources in Japan is not sufficient to do all SM processes.
 - Priority: Critical background processes
 - Results of LDC/LDCPrime studies will be very useful
 - Study of StdHep files will be useful
- ◆ MC Production is mainly on signal processes



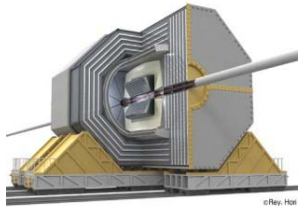
Production processes - Draft

■ Calibration samples:

- ◆ Single particle: γ , k^0_L , μ
- ◆ uds quark events (no ISR): $\sqrt{s} = 91.18, 200, 300, 500$ GeV; 10k(?) events
- ◆ c, b quark events (no ISR): $\sqrt{s} = 91.18, 200, 300, 500$ GeV; 10k(?) events

■ Signal samples ($\sqrt{s}=500\text{GeV}, 500\text{fb}^{-1}$)

- ◆ $e^+e^- \rightarrow \tau$ pair
- ◆ $e^+e^- \rightarrow$ top pair
- ◆ Chargino, Neutralino, Smuon pair production
 - ◆ SUSY Generator –
PhysiSim generator will be updated to use Isajet SUSY parameters
 - ◆ Background – preselected from the Standard StdHep samples.

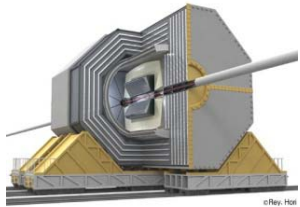


250 GeV Signal Samples - Draft

- Signal samples ($\sqrt{s}=250\text{GeV}$, 250fb^{-1})
 - ◆ $e^+e^- \rightarrow ZH \rightarrow eeH, \mu\mu H$: $M_h=120\text{GeV}$
 - ◆ $e^+e^- \rightarrow ZZ \rightarrow eeZ, \mu\mu Z$:
 - ◆ $e^+e^- \rightarrow ZH \rightarrow \nu\nu H, qqH$
 - ◆ Background processes other than ZZ: will be selected from StdHep samples.

Inputs:

- New SLAC StdHep samples
- If not ready, our own generator samples will be used



Beam parameters for 250 GeV

- From Andrei Seryi, 11 March, Based on his presentation at TILC08

	Calib.90	Nom.200	Nom.250	Nom.350	Nominal	Upgr.1TeV
Ecms [GeV]	90	200	250	350	500	1000
N	2.0E+10	2.0E+10	2.0E+10	2.0E+10	2.0E+10	2.0E+10
nb	2625	2625	2625	2625	2625	2625
Tsep [ns]	369.2	369.2	369.2	369.2	369.2	369.2
Iave in train [A]	0.0087	0.0087	0.0087	0.0087	0.0087	0.0087
f	2.5	5	5	5	5	4
Electron polarization, %	N/A	80	80	80	80	80
Positron polarization, %	N/A	N/A	N/A	N/A	N/A	N/A
Electron E-spread, %(note1)	0.70	0.35	0.28(note2)	0.20	0.14	0.14
Positron E-spread, %(note1)	0.50	0.25	0.18(note2)	0.10	0.07	0.07
IP Parameters						
bx	7.5E-02	2.6E-02	2.2E-02	2.0E-02	2.0E-02	3.0E-02
by	2.0E-03	6.0E-04	5.0E-04	4.0E-04	4.0E-04	3.0E-04
sigx_effective	3.3E-06	1.2E-06	9.5E-07	7.6E-07	6.4E-07	5.5E-07
sigy_effective	3.5E-08	1.3E-08	1.0E-08	7.4E-09	5.7E-09	3.3E-09
gamepsX effective	1.3E-05	1.0E-05	1.0E-05	1.0E-05	1.0E-05	1.0E-05
gamepsY effective	5.4E-08	5.6E-08	5.3E-08	4.7E-08	4.0E-08	3.6E-08
L* [m]	3.5	3.5	3.5	3.5	3.5	3.5
BDS Inc. t-t jitter, sigma	0.5	0.5	0.5	0.5	0.5	0.5
BDS Inc. b-b jitter, sigma	0.1	0.1	0.1	0.1	0.1	0.1
sigz	3.0E-04	3.0E-04	3.0E-04	3.0E-04	3.0E-04	3.0E-04
Dx	0.03	0.13	0.15	0.17	0.17	0.11
Dy	3.3	11.4	14.0	17.5	19.1	18.9
Uave	0.002	0.010	0.016	0.027	0.047	0.109
delta_B	0.0002	0.003	0.006	0.012	0.023	0.050
P_Beamstrahlung [W]	1.9E+02	1.4E+04	3.2E+04	9.0E+04	2.4E+05	8.4E+05
ngamma	0.26	0.74	0.89	1.09	1.29	1.43
Hd	1.9E+00	1.8E+00	1.7E+00	1.7E+00	1.7E+00	1.5E+00
Geo Lum	1.8E+36	2.8E+37	4.2E+37	7.4E+37	1.1E+38	1.8E+38
Lum. (m-2 s-1)	3.3E+36	4.7E+37	7.1E+37	1.2E+38	1.9E+38	2.8E+38

Ref: <http://ilcphys.kek.jp/soft/ILCBeam/BeamParameter.html>