DR to RTML

ILC DR Technical Baseline Review
Frascati, July 7, 2011

Mark Palmer
Cornell University

Extracted Parameters

	Low Power		High Power
Train rep. rate	5 Hz	10 Hz	5 Hz
Number of bunches/train	1300	1300	2600
Number of particles/bunch	2×10^{10}		
Energy	5 GeV		
Horizontal emittance	$<8.0\ 10^{-10}$ m.rad		
Vertical emittance	$2.0\ 10^{-12}$ m.rad		
rms relative energy spread	<0.15%		
rms bunch length	6 mm		
e^+ Vertical damping time	24 ms	13 ms	24 ms
e^- Vertical damping time	24 ms	18 ms	24 ms
Horizontal/vertical jitter	$<0.1\sigma_x/\sigma_y$		

Treaty Point

- Positron DRs to RTML
  - **Positron Merger**
    - Lines to bring the beams from the 2 positron rings to the same height belong to the damping rings group
    - This height will be the same height as the electron ring
    - The kicker magnet necessary to combine the beams from the 2 positron beams is also included in the DR beam lines
  - **Treaty Point: the vacuum chamber at the exit of the "merger kicker" will define the transition to RTML responsibility**
- Electron DR to RTML
  - **Presently assume that the electron treaty point will be defined as the "mirror image" of the positron treaty point**

DR Planning

- Tentative plan is that the extraction lines will be included in the Cornell lattice design effort
  - **Positron Lines: Beam lines to the merger point along with the merger "kicker" configuration**
  - **Electron Line: Equivalent beam line to positrons with no vertical component and no kicker**
- Since…
  - **the extraction line for electrons interacts spatially with the injection lines for positrons, and…**
  - **the extraction lines for positrons interact spatially with the injection line for electrons…**
  - **Will plan to provide an integrated design…**