

ILC-Asia-2005-05  
April 18, 2005  
Review, Status, Injector

## **WG3 (Injectors) Status**

Presentation at the KEK LC Committee Meeting on April 18, 2005

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# ***WG3 Status (2005 April)***

***ILC Asian WG3 convener KURIKI Masao***

## ***Contents***

- 1)DR studies
- 2)Positron source study

# ***DR Studies***

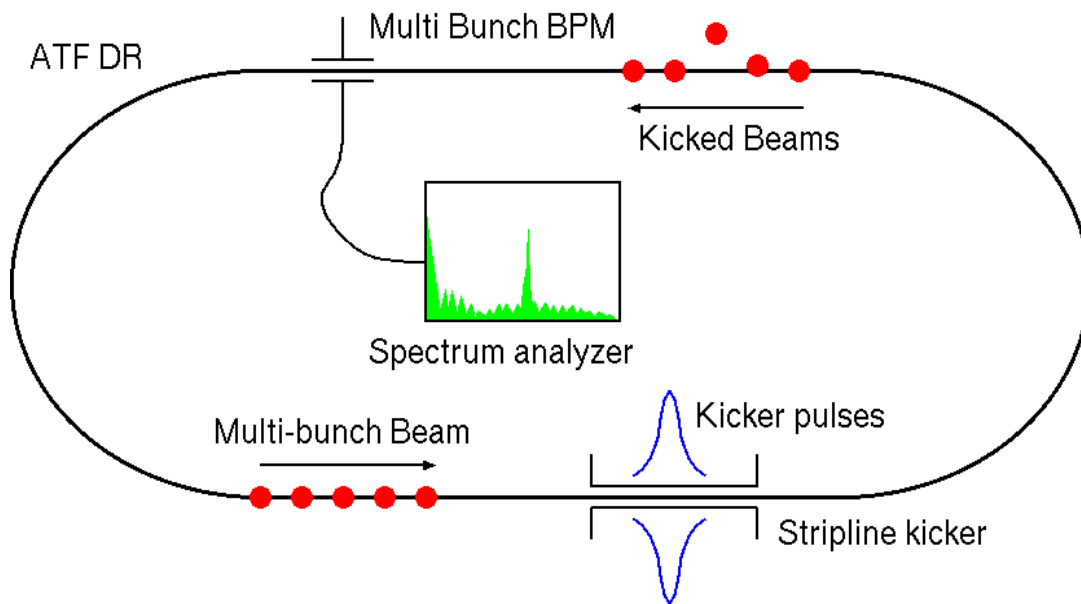
- ▲ Dogbone DR examination
- ▲ Investigation for instabilities.
- ▲ Fast kicker projects
- ▲ Demonstration of electron cloud reduction with a well considered vacuum chamber at KEKB.
- ▲ DR discussion has been started. A protocol for DR decision was proposed.

# ***Demonstration of Electron Cloud Suppression***

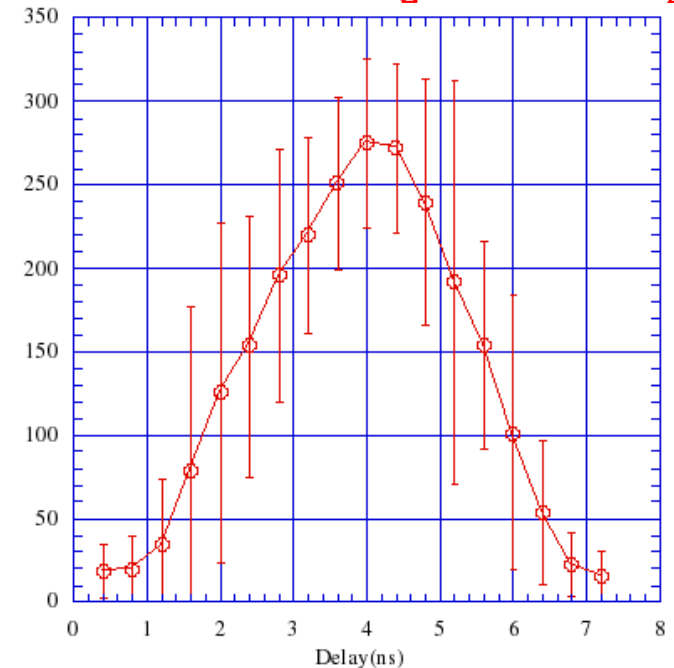
- ▲ Ante-chambers with Cu and TiN coated surfaces which low electron yield is expected with, will be installed into KEKB.
- ▲ By observing electron cloud density, the electron cloud suppression is demonstrated with KEKB.
- ▲ By analyzing the surface in-situ, the suppression mechanism will be understood well.
- ▲ This project is carried out as a collaboration of KEKB vacuum group and ILC WG3.

# Demonstration for the Fast Kicker

- ▲ A strip line kicker deflects Multi-bunch beam to qualify the shortest bunch spacing for the individual beam handling.
- ▲ The kick is observed by a multi-bunch BPM as a betatron motion .



~3ns rise time (preliminary)  
Beam Kick test (FD) pulse



# ***DR Discussion***

- ▶ A discussion board for ILC parameter was set at <http://www-project.slac.stanford.edu/ilc/discussion/Default.htm>
- ▶ A protocol to make a DR design has been proposed from US team (A. Wolski). It will be a baseline of the discussion framework.
- ▶ Inter-region phone/video meeting will be on
  - ▶ Asia-Europa: 4/21 from 16:00 (Japan, Korea) 15:00 (China)
  - ▶ Asia-US: 4/27 8:00 (Japan, Korea) 7:00 (China)

# ***Positron Source Study and Status***

- ▲ IPPAK (ILC Positron Project At KEKB).
- ▲ ILC Positron Source Work Shop at Daresbury, UK.
- ▲ Discussion status.

# **ILC Positron Project At KEKB**

## **IPPAK(一泊)**

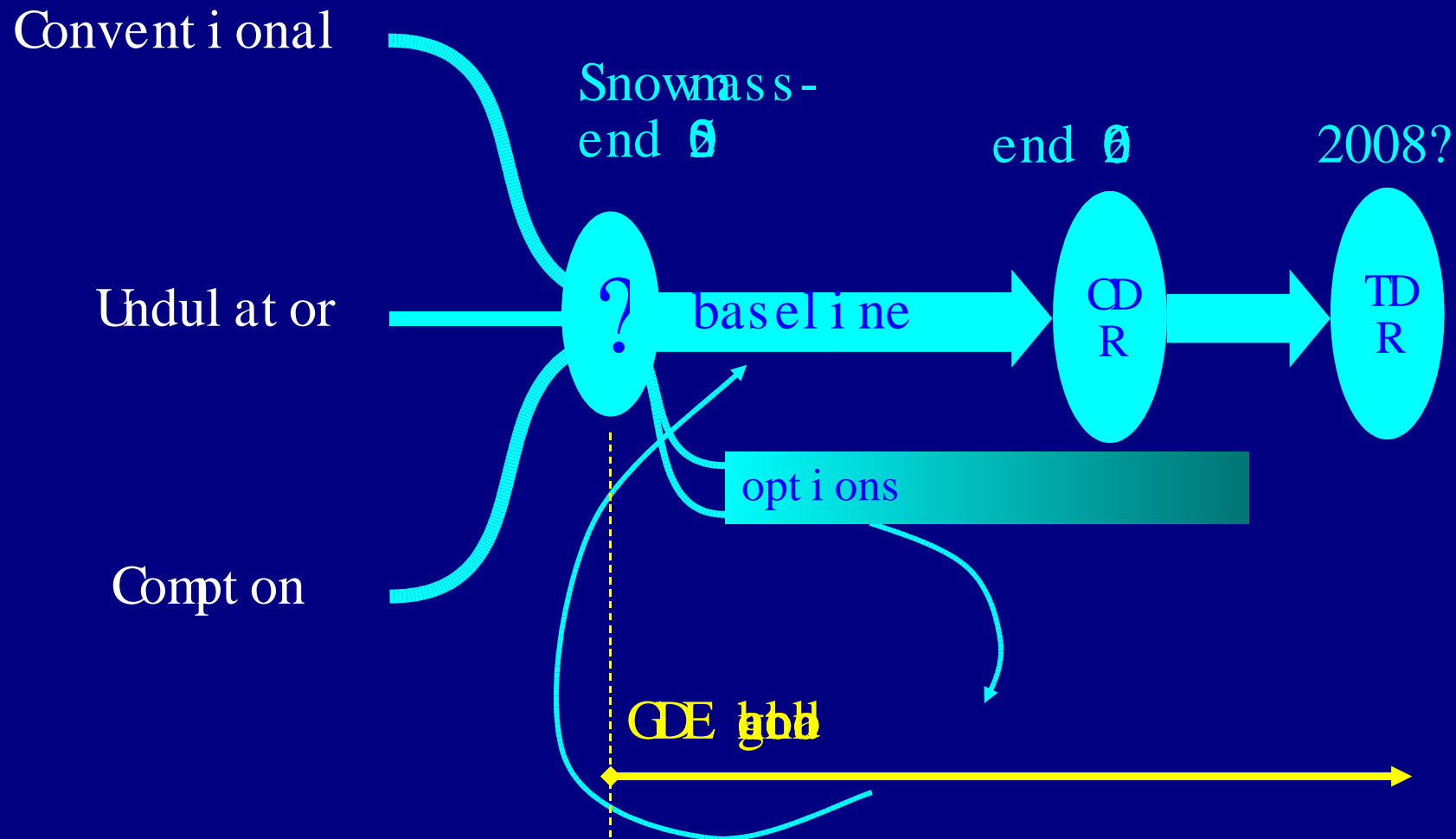
- ▲ The positron production target hardness is examined by injecting electron bunches stored in KEKB at the beam dump.
- ▲ **KEKB mode** : Reproduce the energy density of the ILC target with the KEKB normal operation.
- ▲ **ILC mode** : Reproduce the energy density and the flux by modifying the bunch fill pattern and the abort kicker.



# ***ILC Positron WS @ UK***

- ▲ 4/11-13 @ Daresbury laboratory in UK.
- ▲ Over 40 participants from Japan, US, and European countries.
- ▲ Many issues on undulator, conventional, and Compton schemes were discussed.
- ▲ A framework is decided
  - A report describing proposed schemes will be made until (or before) Snowmass.
  - Discussion will be made based on this report.
  - A baseline and option(s) will be decided according to this discussion.

# The Choice of Baseline Configuration



From Walker's slide

# *Summary*

- ▲ DR studies are in progress.
- ▲ ~3ns rise/fall time on the fast kicker was observed (Preliminary).
- ▲ KEKB vacuum chamber study for electron cloud is carried out in the framework of ILC study.
- ▲ IPPAK is in progress. The experiment will be carried out in May and/or June.
- ▲ Discussions to determine the frame work for the technical decisions have been started.