

ILC Source Systems Work Packages and EDR Discussions

ILC GDE Meeting IHEP, Beijing, China

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February 7, 2007

ILC Positron Effort beyond Beijing Meeting

Combined Source Systems Leaders

Electrons: A. Brachamnn, SLAC

Positrons: J. Clarke, CCLRC; M. Kuriki, KEK, J. Sheppard, SLAC

Met with S5 RDB Leader: E. Elsen, DESY-H

Two Meetings: February 5 and again in February 6 GDE Breakout

***In addition, there was an ILC Positron System Collaboration Meeting
January 30-February 1, 2007 here at IHEP, Beijing***

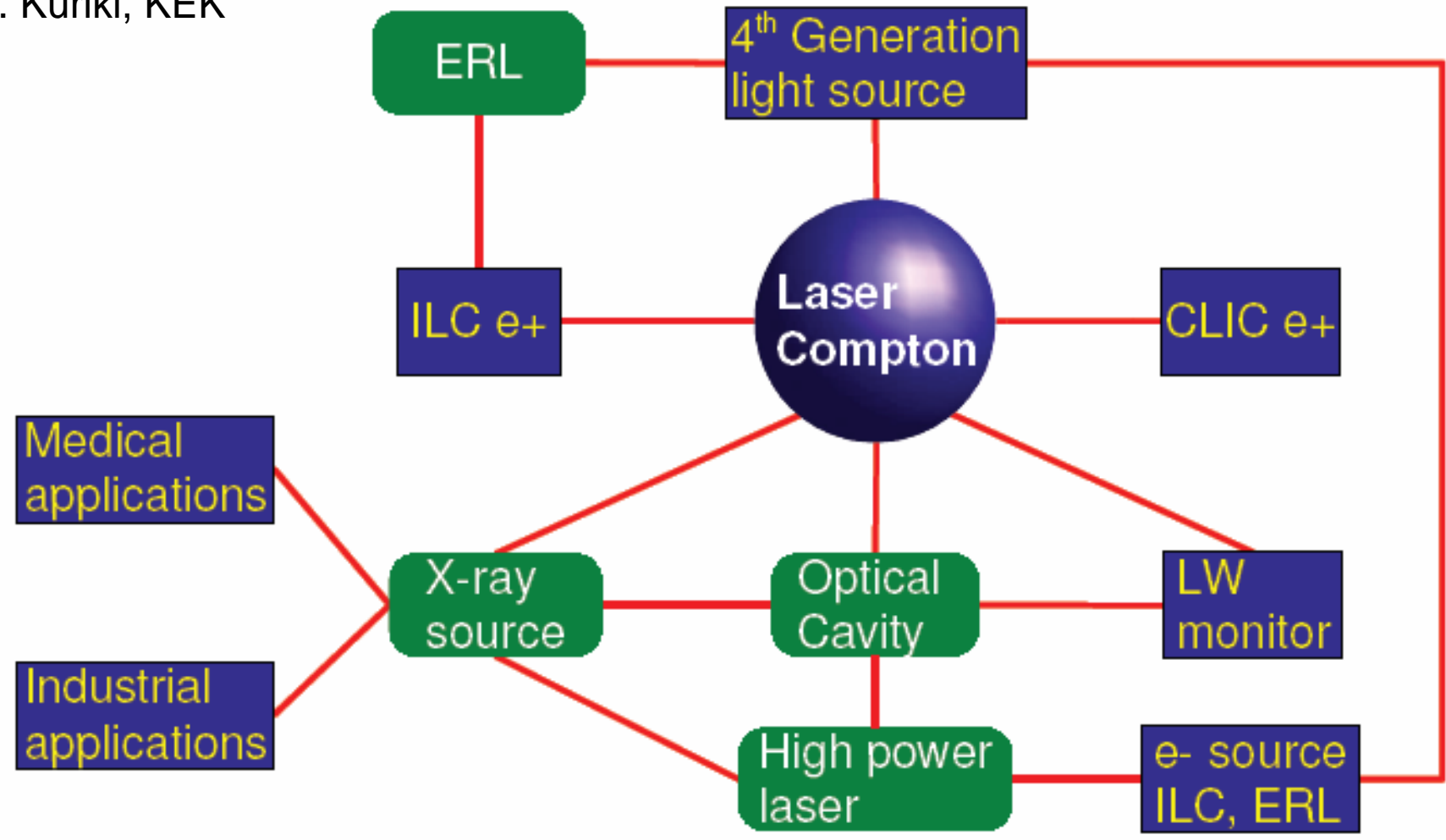
A. Brachmann, SLAC

E- source summary

- EDR pre-requisite R&D
 - Source Laser System
 - DC – gun development
 - Demonstrate ILC bunch train extraction from Cathode
- Available polarization ~ 85 %, ~ 90 % with R&D seems possible
- EDR
 - Sharing of subsystems with other area systems
 - System integration and develop technical descriptions

Chart of PosiPol R&Ds

M. Kuriki, KEK





What shall we do?

- ▶ Summarize our status, M. Kuriki, KEK
 - **What we have,**
 - **What we are doing,**
- ▶ Our first task is to establish a conceptual design, which fully satisfy the ILC specifications. This conceptual design can include technical ambiguities, which will be developed eventually by our/general efforts.
- ▶ Simultaneously , we have to define WPs, which avoid the technical ambiguities and are required to start the full engineering design.
 - **What, Who, When**

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February-April 2007: Complete RDR and supporting documentation
Update BCD to reflect current design

February-June 2007: Develop Engineering Design Report (EDR) Work
Plan:

A Coordinated Global Effort

Needs Definition of Deliverables

Must include:

R&D goals

System Engineering

Physical Layouts

Cost /Schedule for Construction

June 2007: Hamburg GDE/LCWS Meeting to finalize global
EDR plans

More than simply the ILC GDE R&DB

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John Sheppard's opinion

***Did not develop a group consensus, a language problem perhaps:
work packages, bidding, R&D, systems engineering,...***

A question of resource allocation: TS and GS in addition to AS(?)

A question of resource availability:...more or less than for RDR

A question of organization: R&DB, ERDB(?), GDE EC,.....

Did agree to meet regularly via telephone to get this going

First meeting on February 27, 2007 when M. Kuriki is at SLAC

Optics Topics for Consideration 1-of-3

Optics:

Full decks

*Target → initial capture → discrete lattice → dr injection
simulation package*

Physical layout priorities

Realistic layouts (fields, element locations,...)

Transmission profile

Phase space along beamline

Component tolerances: optics, diagnostics, rf

*Tuning requirements, beamline setup and operation, autosteer,
autophase, autoenergy, autolaunch,....*

Optics Topics for Consideration 2-of-3

Space Charge Effects

SC issues (or not) in the lower energy section of the e- SC booster linac.

Collimation:

Full modeling: devices, activation, performance

DR loss criteria: chronic and acute

Spin Transport:

Positrons

Electrons

Optics Topics for Consideration 3-of-3

Optics Topics for Consideration

Electron Dilution:

*Wakefields: resistive wall, surface roughness,
bellows/apertures,....*

Synchrotron radiation: incoherent, coherent, undulator

Magnet errors

Ion cloud

Electron spin dilution (related to spin transport)

Undulator Radiation:

*Improved simulations to include electron beam phase space and
undulator errors (strength and alignment)*