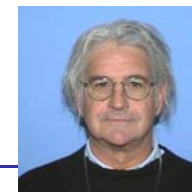




September 24-25, 2007



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# ILC Electron Systems Engineering Design Kick Off Meeting

Stanford Linear Accelerator Center

## Planning for the EDR

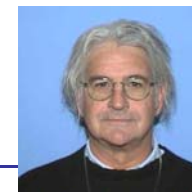
J. C. Sheppard

SLAC

September 24, 2007



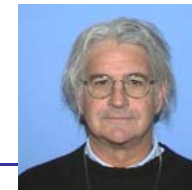
# Nominal Source Parameters



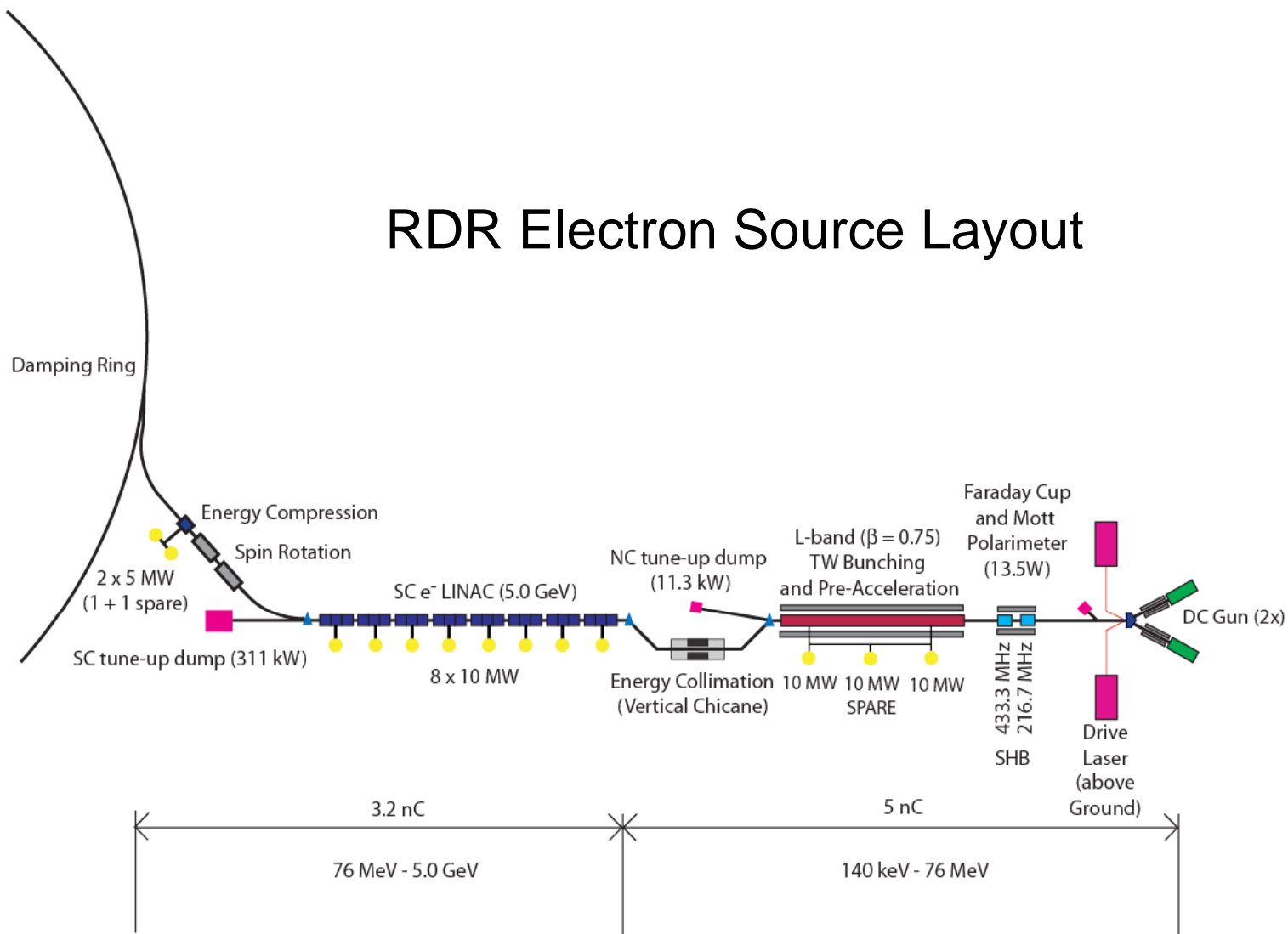
Parameter	Symbol	Value	Units
Bunch Population	$N_b$	$2 \times 10^{10}$	#
Overhead Factor	$F$	1.5	#
Bunches per pulse	$n_b$	2625	#
Bunch spacing	$t_b$	369	ns
Pulse repetition rate	$f_{rep}$	5	Hz
Injection Energy (DR)	$E_0$	5	GeV
Beam Power (x1.5)	$P_o$	300	kW
Polarization e-(e+)	$P$	80(30)	%



# Electron Source Layout



## RDR Electron Source Layout



September 24, 2007

J.C. Sheppard/SLAC

Slide 3



# ILC e- Kick Off Meeting



## Polarized Electron System Technical Milestones (GDE DESY-H)

- 1. demonstrate ILC source laser system at least at a 'proof of principle' level
- 2. demonstrate photocathode performance
  - - extraction of bunchtrain using ILC laser system,
  - - polarization ~ 90%,
  - - QE 0.5 - 1 %)
- 3. complete technical design of bunching system (SHB's, L-band TW)
- 4. complete technical design of polarized gun (200 kV design)
- 5. complete system engineering for NC source beam line layout



# ILC e- Kick Off Meeting



## ILC Electron Source EDR Milestones (June 2007 at DESY-H)

- Dec 07: EDR Scope definition: design depth and breadth, cost, schedule, staff
- Dec 08: Freeze layout, full component and civil specifications
- Jan 09: EDR detailed component inventory
- May 09: First cost review
- Dec 09: Deliver EDR and preconstruction work plan



# ILC e- Kick Off Meeting



## ILC Electron Source EDR Milestones (September 2007 at SLAC)

- Oct 07: Work Packages, initial set
- Dec 07: EDR Scope definition: design depth and breadth, cost, schedule, staff
- June 08: Freeze EDR electron source specific deliverables (installation, construction, safety systems,...)
- Dec 08: Freeze layout, full component and civil specifications
- Jan 09: EDR detailed component inventory
- May 09: First cost review
- Nov 09: Second cost review
- Oct 10: Deliver EDR and preconstruction work plan



# ILC e- Kick Off Meeting



## Planning

- Sep 07: KOM
- Sep 07: ART FY08 (ongoing)
- Oct 07: ILC GDE FNAL
- Dec 07: EDR Scope definition: design depth and breadth, cost, schedule, staff
- ?? 08: EDR e- Systems Review
- ?? 08: EDR e- R&D Review



# ILC e- Kick Off Meeting



## Planning: Now thru December '07

- Determine what we are presently staffed to do, both within the Electron Source and within ILC as a whole (global, technical, accelerator,.....); identify points of contact;
- Identify loose ends: what does not seem to be getting done; ambiguous requirements (upgrades; e- on e-; gamma-gamma; tunnel access; availability specifications, ....); ED project responsibilities: documentation; reviews; project standards (CAD, internet, EDMS, Primavera, ....)
- At present will strive to fill resource holes with miscellaneous SLAC help (others are clearly welcomed)
- Plug holes with a combination of prioritized rescoping and augmented Electron Source resources (ART?)
- In discussion on need/desire to cultivate additional partners (Asia and Europe)
- R&D interest is “easy”; Systems Engineering assistance is more difficult to motivate





# ILC e- Kick Off Meeting



## Needs Clarification, i

Complete performance specifications including:  
upgrades, availability, operations schedule

ED project milestones/schedules

ILC meeting schedules

ED Document standards: EDMS, CAD, Schedule,  
Component specifications, Engineering standards

e- System regular scheduled meetings (need and  
required)



# ILC e- Kick Off Meeting

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## Needs Clarification, ii



ED e- wbs definitions, including:

Parts inventory,

Construction schedule,

Commissioning plan,

Installation responsibilities (warehousing,  
checkout, testing)



# ILC e- Kick Off Meeting

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## Needs Clarification, iii



ED e- wbs definitions, cont'd

e- Management

Construction/commissioning/operations staff  
plan

Labor/Shop Services/M&S breakout: units:  
hours, fte, Currency (need rate tables)

Escalation

Points of Contact: roles, responsibilities, authorities

Review and Specification Hierarchy



# ILC e- Kick Off Meeting

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## Planning



Tomorrow: September 25, 2007

More of the same but with ART funding profile and SLAC staffing levels

List of Work Packages (no surprises)

Need help in making sure the bases are covered with minimal duplication. Resources are thin and effort will be work-to-funds rather than funds-for-work