ILC Damping Rings: Plans for ILC08

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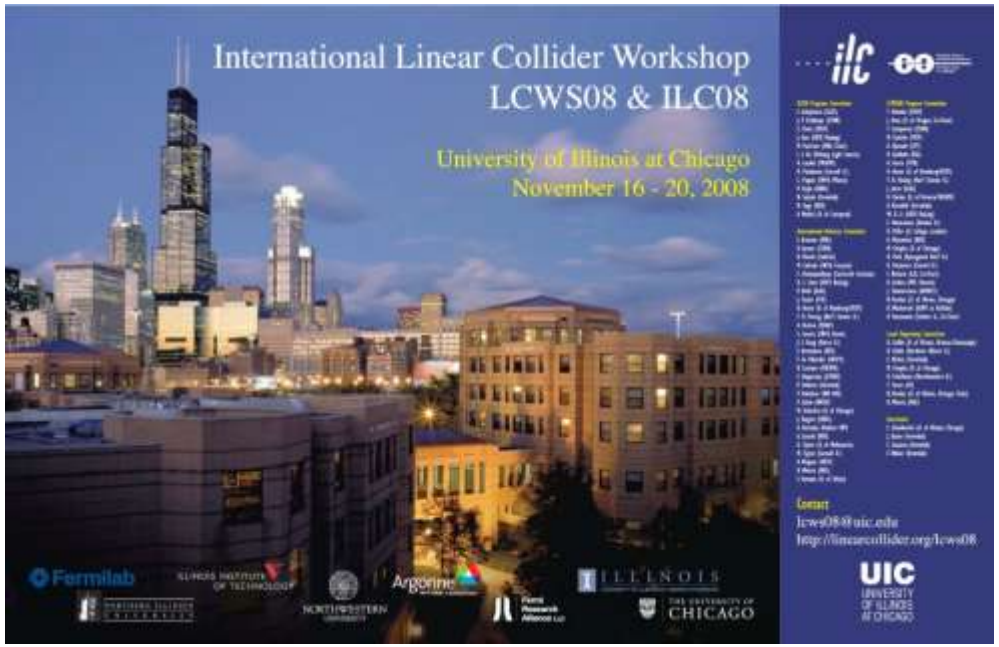
Overview

- Sunday 16 to Thursday 20 November
  - **Sunday and Thursday: plenaries**
  - **Monday, Tuesday, Wednesday: parallel Working Groups**

- Damping Rings Working Group Conveners:
  - **Mark Palmer**
  - **Junji Urakawa**
  - **Andy Wolski**



DR Working Group Charge (1 & 2)

1. Review current status and schedule of CesrTA, including simulation and experimental work for electron cloud characterisation/suppression and low-emittance tuning. Review the priorities of the various tasks, and update the plans for the future CesrTA program.

2. Review ATF status and plans (4th Meeting of the ATF International Collaboration Board). Agenda:
   - Report of 5th and 6th ATF Technical Board Meetings (A. Wolski).
   - ATF Status Report (N. Terunuma).
   - ATF2 Status Report (T. Tauchi).
   - ICB Business (J.M. Paterson): recommendations for the activities and program at ATF/ATF2.

DR Working Group Charge (3)

3. Review recent progress with ILC damping rings R&D, particularly in regard to:
   - critical risk-mitigating R&D, such as the fast injection/extraction kickers;
   - machine design and cost reduction, including configuration issues related to the central injector (in joint discussion with CF&S and other related working groups).

   Identify and prioritise future objectives and necessary resources.

DR Working Group Charge (4)

4. Prepare a plan for the remainder of the Technical Design Phase, including:
   - identification of goals to be achieved by the Accelerator Advisory Panel review in April 2009;
   - identification of studies needed to allow re-baselining of the ILC design by January 2010 (including studies of Minimum Machine options);
   - outline of studies to be completed (including specification of milestones and required resources) for the TD Phase 1 interim report, to be produced by July 2010.

DR Working Group Schedule

	8:30 – 10:00	10:30 – 12:00	13:30 – 15:30	16:00 – 18:00
Monday	CesrTA			Low-Emittance Tuning
	Status, Schedule and Recent Results	Electron Cloud Simulations	Electron Cloud Experimental Planning	
Tuesday	ATF International Collaboration Board 4	ILC Damping Rings R&D Updates and Discussions	Central Injector Layout (joint with CF&S and other WG)	
Wednesday	ILC Damping Rings R&D Updates and Discussions	Planning for the TDP (including Minimum Machine)		

See Indico for Program Details

Contributions

- We welcome contributions on all aspects of the damping rings program:
  - **CesrTA**
  - **ATF**
  - **General damping rings R&D, including ILC and CLIC.**

- Please contact the conveners if you would like to make a presentation, or if you have any suggestions or comments on the program.

Plan for the TDP

		Minimum Machine	Technical Design, and Costing	Critical R&D
TDP Phase I	2008	Specify tasks.	Specify scope.	Continue critical R&D for cost reduction and risk mitigation: • electron cloud; • fast kickers; • low-emittance tuning.
	2009	Perform studies.	Perform technical design and costing work in support of revising the baseline configuration.	
	Start 2010	Revise baseline configuration.		
TDP Phase II	2010 – 2012		Complete work for TDR (end 2012).	Complete critical R&D.

Minimum Machine Studies

- Modify/develop design for ~ 3 km circumference damping ring.
  - **Based on PPA lattice from 2005 Configuration Studies.**
  - **Adjust circumference to give an harmonic number appropriate for timing scheme.**
  - **Ensure necessary subsystems are included (or space available): rf, injection/extraction, chicane...**
- Confirm parameters and properties of 3 km lattice:
  - **emittance, damping times... (should be ok);**
  - **collective effects: instabilities, IBS... (no change expected compared to 2005 studies);**
  - **dynamic aperture (may require some re-tuning).**
- Develop designs for injection/extraction lines:
  - **for both 6 km and 3 km damping ring options;**
  - **required for engineering studies and cost optimisation of central injector configurations.**

Technical Design and Costing Studies

- By end 2008: Complete the technical design work and preliminary costing for 6 km damping ring arc cell.

- Through 2009: Develop outline technical designs and make preliminary cost estimates for:
  - **wiggler section;**
  - **other sections of long straights;**
  - **injection/extraction lines.**
- Update/revise cost estimates for technical subsystems:
  - **power distribution; controls; CF&S...**

- By end 2009: Make preliminary cost estimate for 3 km damping ring (minimum machine) option.
  - **Base cost estimate on scaling from 6 km design.**

Tasks List for the MM/TDP

Table to be filled in during working group discussions:

Task	Responsibility
Modify/develop 3 km damping ring lattice design.	
Evaluate dynamics in 3 km damping ring.	
Develop lattice designs for injection/extraction lines.	
Technical design: develop and maintain CAD models.	
Update and maintain cost estimates.	
Specify and produce outline design and costing for power distribution system.	
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