



# Working Group plans

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# ILC DR e- cloud Working Group Plans

- Characterization of electron cloud at different bunch spacing: 6ns and 3ns.
- SynRad3D simulations for baseline DR
  - **antechamber under testing**
  - **Include photoelectron model**
- Build-up simulations for the baseline DR
  - **with photoelectron distribution by Synrad3D**
- Instability simulations for the baseline DR
- Write Report on Mitigation Recommendation



# Report Document on Mitigations and Recommendation for ILC DR

- The Working Group gave a preliminary recommendation for mitigations in October
- It would be good to make the Executive Summary available for the ILC community:

ILC EDMS, Cornell Wiki site, SLAC-PUB,



# Report Document on Mitigations and Recommendation for ILC DR

- IPAC11 paper
- Then, write a full report produced by the Working Group by September 2011, including: the description of mitigations, the research work, the description of the recommendation process and the recommendation for electron cloud mitigations.

Submit to journal?!



# Report Document on Mitigations and Recommendation for ILC DR

- 1. Introduction, 5 [?]
  - 1.1 Request from AAP, 3 [?]
  - 1.2 Working Group, Charges, Deliverables and Milestones, 5 [Guiducci]
  - 1.3 Test Facilities contribution to DR 20 [Palmer]
- 2.0 Introduction of the Electron Cloud effect 10 [Furman]
- 3.0 Overview of Electron Cloud Mitigations [Pivi/Palmer]
  - 3.1 Solenoid 10 [Kanazawa/Pivi]
  - 3.2 TiN coating 10 [Pivi/Suetsugu/Calvey]
  - 3.3 Carbon coating 10 [Calatroni/ Palmer]
  - 3.4 NEG coating 10 [Malishev/Palmer]
  - 3.5 Coating and impedance [Papaphilippou]
  - 3.6 Grooves and Impedance 10 [Suetsugu/Pivi/Calvey]
  - 3.7 Clearing Electrodes and Impedance 10 [Suetsugu/Billing]
  - 3.8 Conditioning 10 [Suetsugu/Li]
  - 3.9 Single bunch Feedback system 10 [C. Rivetti]



# Report Document on Mitigations and Recommendation for ILC DR

## 5.0 Simulations [Pivi]

**5.1 DR layout and parameters, 10** [Guiducci]

**5.2 Photon and Photoelectron Production, 10**  
[Harkay, Dugan]

### **5.3 Build-up simulations**

**5.3.1 Simulation in dipoles and drifts 10** [Furman]

**5.3.2 Simulation in wigglers 10** [Demma]

**5.3.3 Simulation in quads and sexts 10** [Wang]

**5.4 Single-bunch instability simulations 10** [Pivi]



# Report Document on Mitigations and Recommendation for ILC DR

- 6.0 Recommendation for the baseline and alternate solutions for the electron cloud mitigation in various regions of the ILC Positron Damping Ring**
- 8.1 Set of criteria for a decision, 5 [Pivi]**
- 8.2 Mitigation costs, 3 [Suetsugu / Palmer]**
- 8.3 Reviews and Meetings, 2 [Pivi]**
- 8.4 Methodology for Recommendation, 6 [Pivi]**
- 8.5 Mitigations recommendation: [Pivi/Palmer/Guiducci]**
  - 8.5.1 Dipole regions, 5**
  - 8.5.2 Wiggler regions, 5**
  - 8.5.3 Drift regions, 5**
  - 8.5.4 Quadrupole regions, 5**
- 9.0 Summary 5 [Pivi]**



# WG Main Deliverables

Recommendation for the reduction of the ILC Positron Damping Ring Circumference

Done March 2010

Recommendation for the electron cloud mitigation in various regions of the ILC Positron Damping Ring.

Done October 2010

Characterization of electron cloud at different bunch spacing: 6ns and 3ns

Done October 2010

Report on Recommendation for Mitigations

~January 2012