

Summary of the **Software, Detector Performance, Reconstruction** Sessions

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CERN-PH-LCD

ECFA LC Workshop
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Presentations



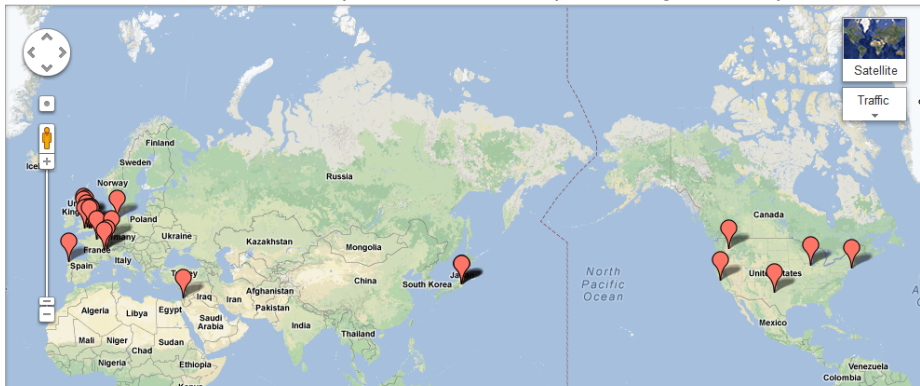
<p>An improvement of strip calorimeter reconstruction</p> <p>29th May 2013 K. Kotera & T. Takeshita Shinshu University</p>	<p>Re-Implementation of the BeamCal Electron Tagging Algorithm</p> <p>André Sailer CMS/PHOT ECFA LC Workshop May 28, 2013</p>	<p>ECFA LC 2013 - WHIZARD Status Report</p> <p>Jürgen R. Reuter DESY Hamburg</p> <p>ECFA LC workshop 2013, DESY Hamburg, May 28th, 2013</p>	<p>Status Report on Silicon Tracking</p> <p>Yorgos Voutsinas IPHC PICSEL group - DESY FLC group</p> <p>yorgos.voutsinas@desy.de</p>
<p>pyLCIO - Python bindings for LCIO</p> <p>Christian Geisler CMS 28. May 2013</p>	<p>MonteTPC and Testbeam Software</p> <p>Astrid Mewlich</p> <p>ECFA Meeting, 26. May 2013 DESY, Germany</p>	<p>Precise luminosity measurement at 3 TeV CLIC</p> <p>S. Lukic FCAL and CLIC collaborations ECFA 2013, Hamburg</p>	<p>lesim software: status and future plans</p> <p>Norman Graf (for the lesim group)</p> <p>ECFA LC 2013 May 28, 2013</p>
<p>ILD Tracking Status and Plans</p> <p>Ch. Roserlein DESY</p>	<p>Simulation Study for the Hybrid ECAL for ILD</p> <p>ECFA2013 @DESY 27th-31st May, 2013 Hiraku Ueno (Kyushu University) On behalf of ILD ECAL group</p>	<p>iLCSoft Status and Plans</p> <p>Frank Goede, DESY ECFA Workshop 2013 DESY, May 27-31, 2013</p>	<p>DD4hep - Geometry Description for HEP Experiments</p> <p>Christian Geisler CMS 28. May 2013</p>
<p>Latest developments for SDV</p> <p>Mikael Berggren¹ ¹DESY Hamburg European Linear Collider Workshop ECFA LC2013, DESY, May 2013</p>	<p>Study of Pair Background in ILD</p> <p>Earlier Studies of Pair Backgrounds Study of the source of excess backgrounds in DSD Outlook</p> <p>European Linear Collider Workshop ECFA LC2013, DESY, May 2013</p>	<p>Performance Evaluation and Software Development of FPCCD Vertex Detector for ILC</p> <p>MORI Takuya, KAWA Daikichi, MIYAMOTO Akira, SUZUKI Yusaku¹, INOUE Akimasa, KUBIYAMA Takao, KATO Eriko, YAMAMOTO Hisashi Tohoku University, KEK²</p>	

“Luminosity”



Our current “luminosity” is provided not by an accelerator but by a large number of CPUs

- All detector concepts have heavily used the Grid for the Monte Carlo production using resources in the WLCG and OSG grid sites all over the world and benefited a lot from support by the local computing and Grid groups
- Not much mention of issues with the Grid
- Conclusion: The performance of the Grid is excellent and taken for granted, and the site admins have performed and are performing admirably!



Applause! Applause! Applause!



- Python Interface to LCIO for high level analyses (C. Grefe)

```
from pyLCIO import IOIMPL
reader = IOIMPL.LCFactory().getInstance().createLCReader()
reader.open("test.slcio")
for event in reader:
    print event.getEventNumber()
reader.close()
```

- SGV Fast Detector Simulation (M. Berggren) – Easy to install and run simulation
- WHIZARD Event Generator (J. Reuter)
 - ▶ They asked for user wishes, and they got them:
 - ★ Improve resource usage, memory consumption
 - ★ Interface GUINEAPIG and WHIZARD
 - ★ Luminosity spectrum interface in WHIZARD2
 - ★ LCIO output format
- DD4hep – Geometry description for HEP Experiments (C. Grefe) – Short overview over the basis for common LC Geometry for Simulation, Reconstruction, and Analysis
- Status and Plans of: *Icsim* (N. Graf) and *iLCSoft* (F. Gaede) – Wide range of tools available, single installation of almost all of them possible in one go. More and more merging to common tools used by everyone

Reconstruction and Beam-Induced Backgrounds



- Considerable effort to include Beam-induced backgrounds in the reconstruction
- Even more effort to improve reconstruction to behave as if there was no background in the first place
- Studies-of and Issues-with pair background
 - ▶ *Studies of Pair Background in ILD* (E. Avetisyan) – Anti-DiD field strength has large impact on background rates in the VXD, Anti-DiD has to be tuned better
 - ▶ *Status Report on Silicon Tracking* (Y. Voutsinas) – Improved Silicon tracking performance, then added incoherent pair background, further improved the efficiency, *and* made it run faster
 - ▶ *Performance Evaluation and Software Development of FPCCD Vertex Detector for ILC* (T. Mori) – Good tracking performance even in presence of beam-backgrounds
- *Precise luminosity measurement at 3 TeV CLIC* (S. Lukić) – Sophisticated method to offset the beam-beam effects in the luminosity measurement, is also applicable at ILC
- *Re-implementation of Electron Tagging Algorithm for the BeamCal (AS)* – Gave detailed overview of implementation

Tracking

- *ILD Tracking: Status and Plans* (C. Rosemann) – Plan to create a more easy to maintain and more general tracking toolkit for LC studies, building upon the DBD-tested tracking tools
- *MarlinTPC and Testbeam Software* (A. Münnich) – Some of the tracking ILD tracking tools used on testbeam data, but also deal with calibration and corrections. Work ongoing for complete reconstruction chain handling different technologies for the TPC

Calorimeters:

- *An improvement of strip calorimeter reconstruction* (K. Kotera) – Improved Strip Splitting Algorithm and scintillator layouts give better and better jet energy resolution
- *Simulation Study for the Hybrid ECAL for ILD* (H. Ueno) – Many combinations studied, replacing some silicon layers by scintillator sensors can be done without degradation of performance

When something goes wrong...



...write a bug report:

`forum.linearcollider.org`

`http://jira.slac.stanford.edu/`

Summary of the Summary



- Many dedicated people writing better and better software