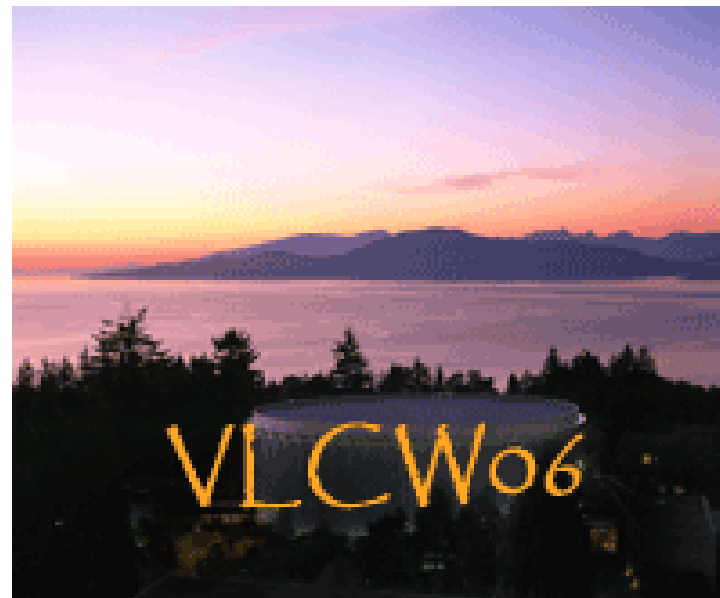




GDE Summary



Barry Barish
GDE / Caltech

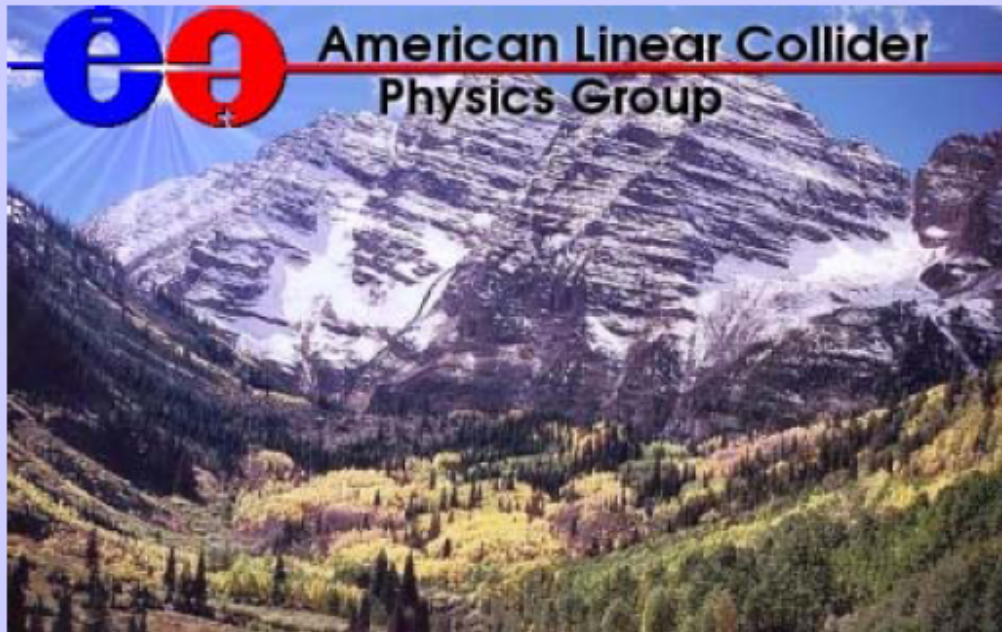


My Final Plenary Talk

- I will report on the status of the ILC costing !
- I will report on plans between Vancouver and Valencia
- I will report on other GDE decisions – for example the EDMS system we will adopt and our implementation plan.

***From my Introductory
Plenary Talk on Wednesday***

Report from the GDE director



*2005 International Linear Collider Physics and Detector Workshop
and Second ILC Accelerator Workshop
Snowmass, Colorado, August 14-27, 2005*

Barry Barish
Snowmass
14-Aug-05



Snowmass Aug 2005

GDE – Near Term Plan

- **Schedule**
 - **Begin - define Configuration (Snowmass Aug 05)**
 - **Baseline Configuration Document (end of 2005)**
 -
 - **Baseline under Configuration Control (Jan 06)**
 - **Develop Reference Design (end of 2006)**
 - **Coordinate the supporting R&D program**
- **Three volumes -- 1) Reference Design Report; 2) Shorter glossy version for non-experts and policy makers ; 3) Detector Concept Report**

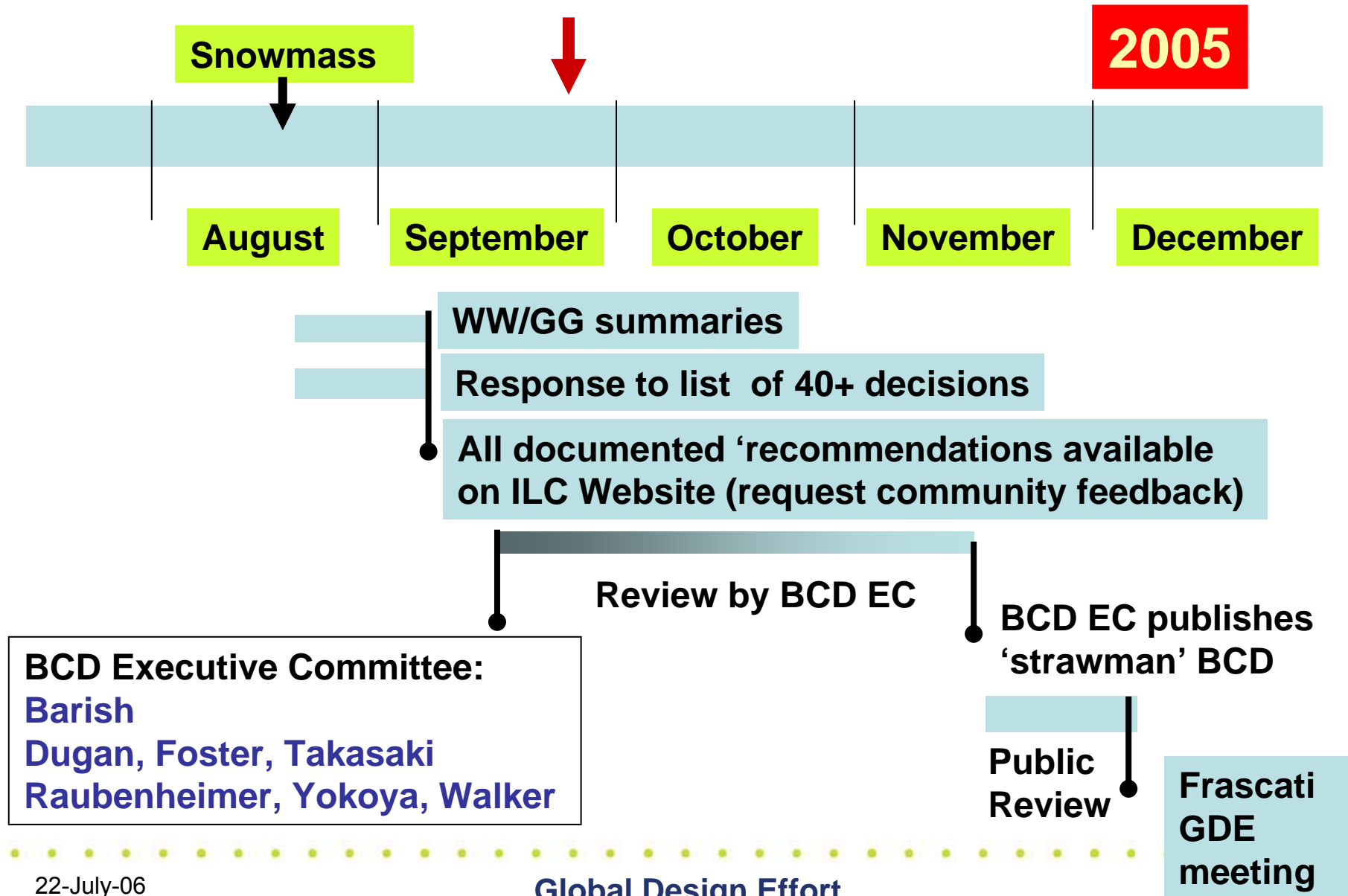
2-Aug-05

Snowmass Plenary - Barish

2

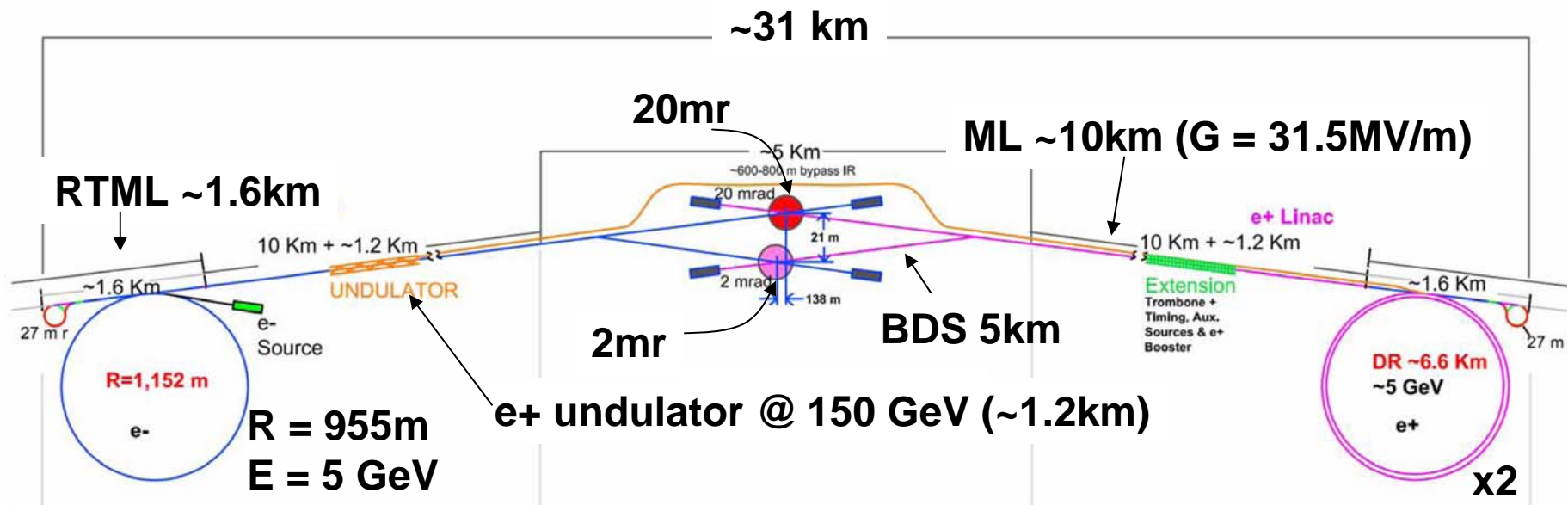


From Snowmass to a Baseline





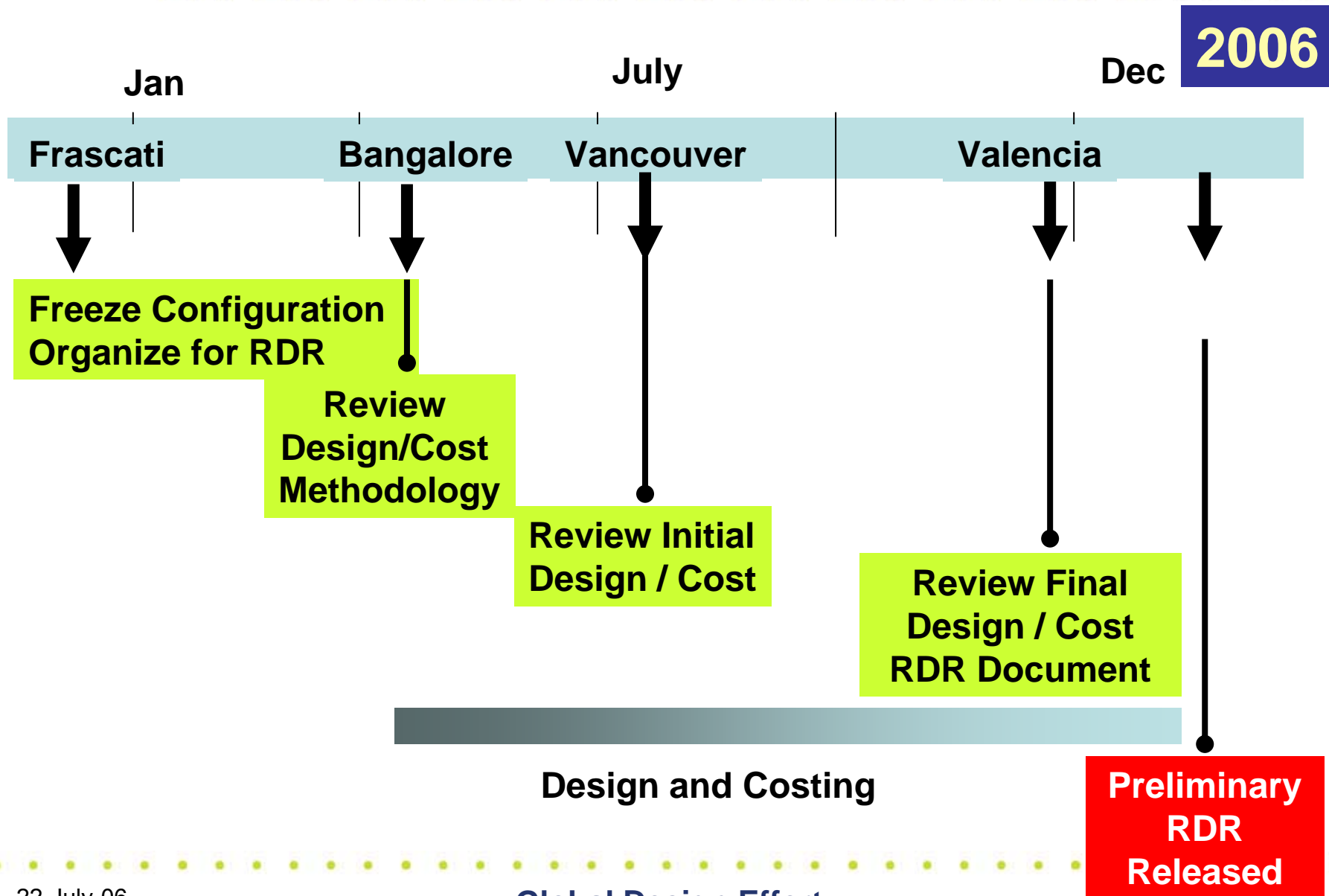
The Baseline Machine



not to scale



Baseline to a RDR





COSTING

- **ILC-GDE Cost Disclosure Rules**
- **Guidelines for Area System, Technical and Global Group Leaders for discussing costs during parallel sessions at Vancouver**

Distributed to GDE members prior to VLCW06 to serve as guidance for discussions at this meeting and general policy as costing evolves



RDR Cost Estimating

- 500 GeV BCD machine + “essentials” for 1 TeV
- Follow ITER “Value” & CERN “CORE” model for International Projects
 - Provides basic agreed to costs [common “value” + in-house labor (man-hr)]
- RDR will provide information for translation into any country’s cost estimating metric, e.g. Basis of Estimate => contingency estimate, in-house labor, G&A, escalation, R&D, pre-construction, commissioning, etc.
- Assumes a **7 year** construction phase

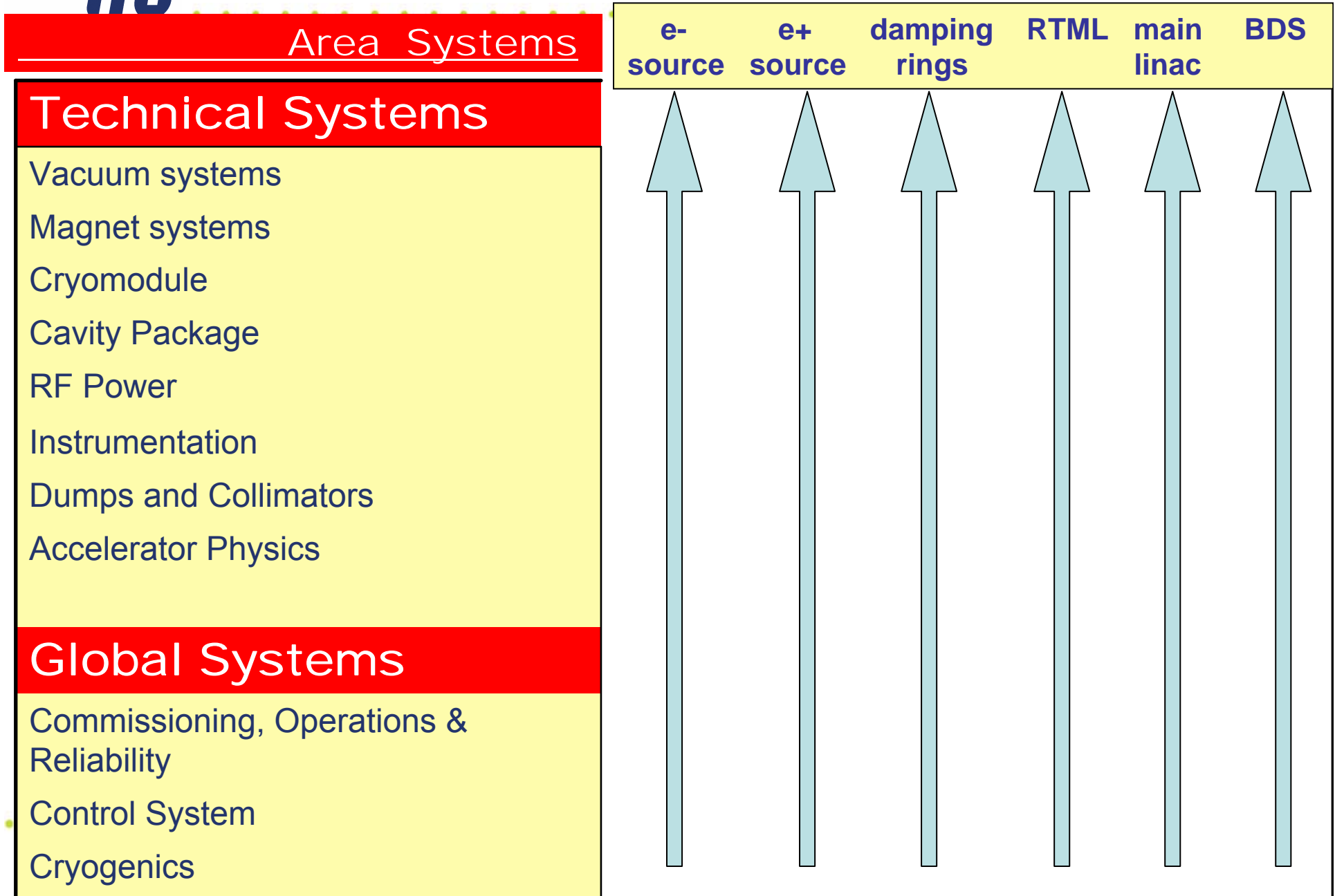


ILC Cost Estimate

- **Based on a call for world-wide tender:
lowest reasonable price for required quality**
- **Classes of items in cost estimate:**
 - **Site-Specific (separate estimates for each site)**
 - **Conventional – global capability (single world est.)**
High Tech – cavities, cryomodules, regional estimates
- **Cost Engineers will determine how to combine and present multiple estimates**
- **WBS ; WBS Dictionary; Costing Guidelines are mature enough - cost estimating is underway**



Cost Roll-ups





Vancouver Cost Data

System description	July 18, 2006 - Cost Estimates received for								Regional		
	common	e-	e+	DR	RTML	ML	BDS	Exp	Am	Asia	Eur
e- Source		√									
e+ Source			√								
DR				√							
RTML					√						
Main Linac											
BDS							√				
Com, Op, Reliab											
Control System	√	√	√	√	√	√	√				
Cryogenics		√	√	√ *	√	√	√ *				
Convent. Facilities	√	√	√	√	√	√	√ *	√	√	√	√
Installation	√	√	√	√	√	√	√				
Instrumentation	√	√	√	√	√	√	√				
Cavities				√					√		√
Cryomodules		√	√		√	√			√	√	√
RF	√	√	√	√	√	√			√	√	√
Magnets & PS				√ *			√ *				
Dumps & Collim		√	√	√	√		√				
Vacuum		√	√	√	√	√	√				
Accel Phys											

√ = complete, √ * = almost complete, missing something minor



What's Next on Costing?

- **Optimize cost/performance and continue to complete estimates based on current design**
 - **Validate the data we have**
 - **Pick cost drivers within systems study those costs, the requirements for those items, etc**
 - **Select a finite number of potential baseline changes that can save \$\$ and analyze the cost/performance benefit.**
- **We are making schedule of reviews and milestones for this process. EC-RDR Mgt will meet every month face-to face through Valencia. The work will be done through area, technical and global groups who will report at these meeting.**
- **We plan to have internal costing and drafts of RDR Report ready for Valencia with the **draft** report ready for release early 2007.**



The ILC RDR Report

- High level description of accelerator, sites, & cost similar to GLC Report <http://lcdev.kek.jp/RMdraft/>
- Executive Summary
 - 1) Accelerator Design
 - 2) Technical and Global Systems
 - 3) Conventional Facilities
 - 4) Sites
 - 5) Costs
 - 6) TDR R&D Plan
- **Schedule**
 - Rough 1st Draft
 - Complete Draft

Nan Phinney
Editor
Nick Walker
Nobu Toge
Co-Editors

Total pages ~ 250

KEK MAC, Sept 20
Valencia, Nov 6



Brau – ALCPG Plenary

Detector Concept Report

- WWS has established teams of editors for the companion volume, the DCR
 - Physics editors - K. Moenig, A. Djouadi, M. Yamaguchi, Y. Okada, M. Oreglia, J. Lykken
 - Detector editors – T. Behnke, C. Damerell, J. Jaros, A. Miyamoto
 - Cost analysis of the concepts – M. Breidenbach, H. Maki, H. Videau – interacting with GDE Cost Board
- Active during VLCWS06

<http://www.linearcollider.org/wiki/doku.php>



Glossy ILC Report



- Translate the RDR and DCR into an exciting and enticing story for governments, funding agencies and policy-makers
- Lead with science!
- First Step: Appoint a board with chair, ILC communicators and representation from all regions and detector/machine communities
- Solicit feedback from our “customers” and produce a glossy report (25-35 pages?)
- Publish report in early 2007, coordinated with the preparation and release of the RDR and DCR



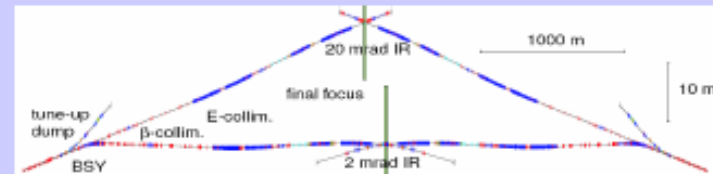
Brau – ALCPG Plenary

Detector Concept Report

- Physics
- Concepts
 - Based on four detector concept DOD's
- The goal:
 - We can do the ILC physics
 - We have different and complementary solutions
 - We have a clear vision on how to reach the goals (R&D)
 - We have some understanding on the cost for these detectors
- Integrated presentation of Concepts
- Case for Two Detectors/IRs

Case for Two Complementary Detectors

- Confirmation and Scientific Redundancy
- Complementarity, Collider Options
- Competition
- Efficiency, Reliability, Insurance
- Sociology, Scientific Opportunity
- Historical lessons



<http://www.slac.stanford.edu/econf/C0508141/proc/papers/PLEN0059.PDF>



Elements of the ILC R&D Program

- R&D in support of the baseline
 - Technical developments, demonstration experiments, industrialization, etc.
- R&D in support of alternatives to the baseline
 - Proposals for potential improvements to the baseline, resources required, time scale, etc.
 - Guidance from Change Control Board
- **DETECTOR** R&D program aimed at technical developments needed to reach **combined** design performance goals

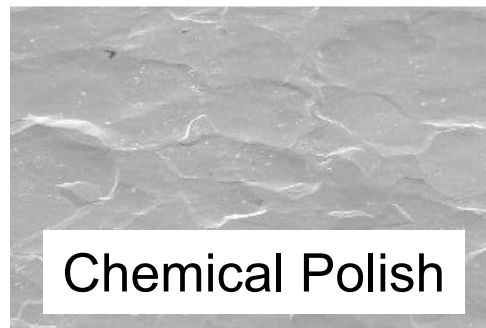
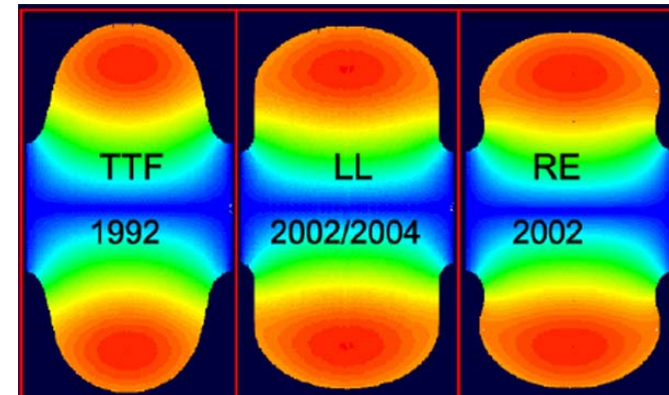


Developing Global R&D Plan

- **High priority items first**
 - **Advice for US R&D Funding**
- **Initiating two SRF task forces**
 - **S0 / S1 to demonstrate gradient and yield**
 - **S2 to develop system tests**
- **Coordinate R&D on “alternatives” to the Baseline**
 - **CCB will define goals to replace the baseline**
 - **RDB will determine program – milestones, resources, etc**



Superconducting RF Cavities





S0/S1 Task Force

- H. Hayano, T. Higo, L. Lilje, J. Mammosser, H. Padamsee, M. Ross, K. Saito

CHARGE

- *The RDB is asked to set up a Task Force to carry out a closely coordinated global execution of the work leading to the achievement of the accelerating gradient specified in the ILC Baseline.*
- *A definition of the R&D goals for the cavity performance in terms of gradient and yield and a plan for achieving them should be proposed by this group, which should take account of the global resources available and how they may be used most rapidly and efficiently.*
- *The accelerating gradient performance and yield should be specified for cavity production, and treatment process (S0), and for cryomodules (S1), and the plan should cover the demonstration of this performance in all cases.*
- *The GDE will facilitate the coordination at the global level to achieve this vital goal as soon as possible.*



S2 Task Force

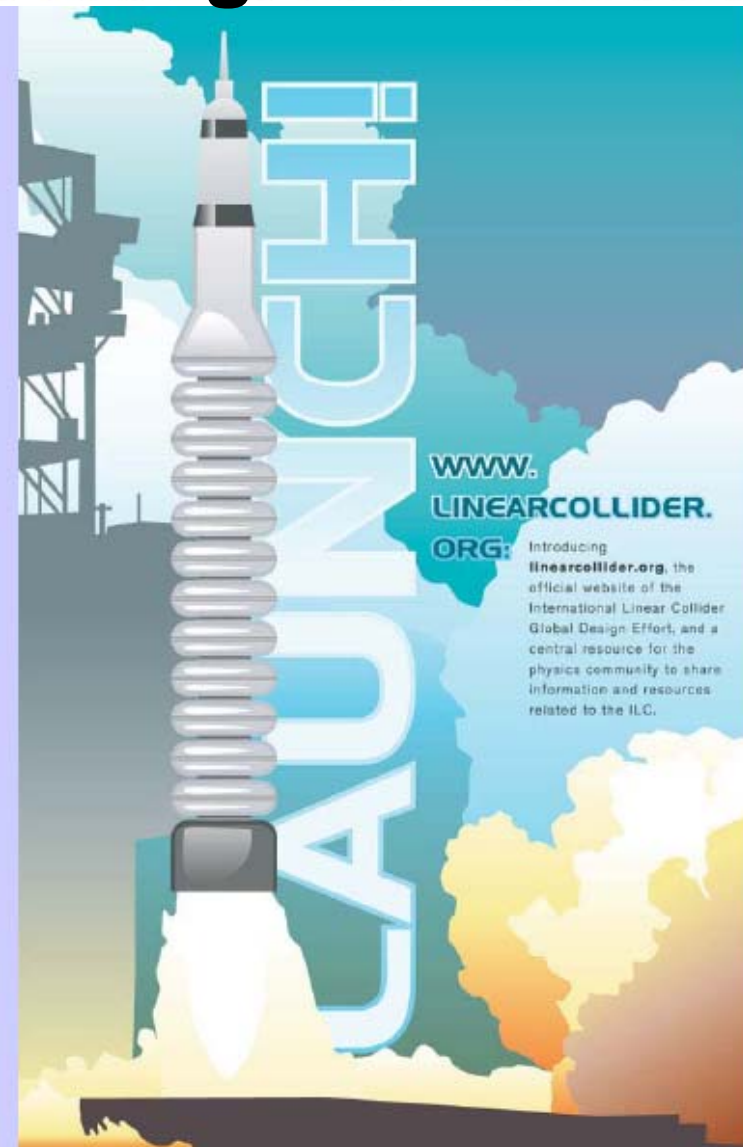
- Task force set up by the Global R&D board
 - What are the reasons and goals of a system test? Start with TRC R2 list.
 - Determine how many RF units are needed as a system test before ILC construction
 - Do they need to be in a string?
 - Is beam needed?
- Charge has been viewed, but not yet approved by the EC
- Just getting started on the work
- -----
- Hasan Padamsee (Co-Chair)
- Tom Himel (Co-Chair)
- Bob Kephart
- Hitoshi Hayano
- Nobu Toge
- Hans Weise
- Consultants: Sergei Nagaitsev, Nikolai Solyak, Lutz Lilje, Marc Ross, Daniel Schulte



Snowmass Aug 2005

ILC Communications

- **Launch New ILC Website**
www.linearcollider.org
 - thanks to Norm Graf for url
- **“One Stop Shopping”**
 - electronic document management system (EDMS), news, calendar of events, education and communication,
- **Designer**
 - Xeno Media (Kevin Munday)





Snowmass Aug 2005

File Edit View Go Bookmarks Tools Window Help

New Tab ILC Home

ILC International Linear Collider

for Collaborators for The Press for Communicators for Students and Educators

search: go

What is the ILC?
Global Design Effort
Talks
Reports and Statements
ILC in the News
Images
Contacts
Around the World
Calendar
Glossary

Live from Snowmass!
August 14-27, 2005
(click for daily coverage)

Latest News

9 August 2005
ILC GDE Press Release
World's Particle Physicists to Address Scientific Revolution at Snowmass, Colorado Workshop, August 14-27
[Read release...](#)

6 July 2005
National Geographic:
Scientists Ponder Universe's Missing Antimatter
[Read story...](#)
[ILC News Archive](#) from Interactions.org

Latest Documents

 **Discovering the Quantum Universe:**
The Role of Particle Colliders
Report for EPP2010

Features

 **2005 Snowmass Workshops**
Information and schedules
Highlights posted twice per day

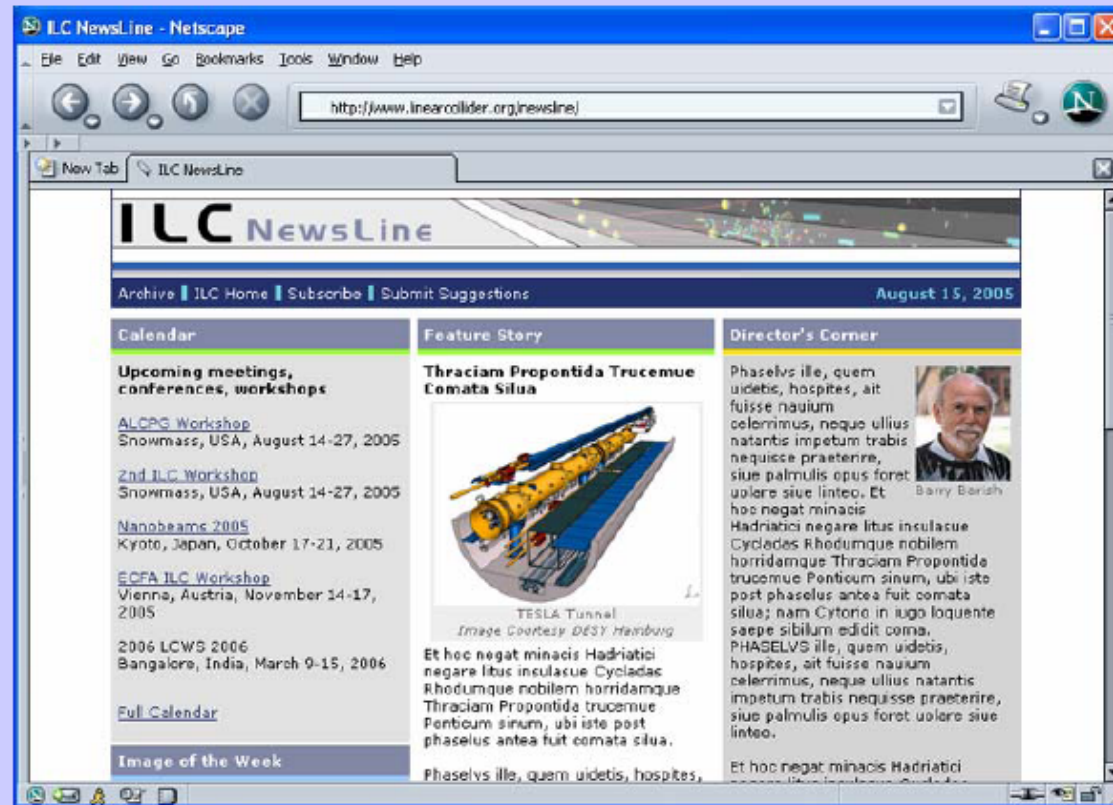
 **symmetry - August 2005**
The ILC issue

 **Talk: The ILC Global Design Effort**
Barry Barish
EPP2010, 2 August 2005



Snowmass Aug 2005

ILC Newsline



Subscribe at <http://www.linearcollider.org>

2-Aug-05

Snowmass Plenary - Barish

5



Committee Members

John Ferguson – CERN

Lars Hagge * - DESY

**Tom Markiewicz* - SLAC
(Chair)**

Richard Stanek* - FNAL

Nobu Toge* - KEK

Harry Weerts* - Argonne

*** = present at Vancouver**



Charge to the Committee

The committee should recommend a specific web based software solution, which may mean an integrated collection of distinct software packages that will allow ILC collaborators worldwide to store, search for and retrieve various kinds of documents.

At least three basic kinds of documents must be handled:

1. meeting/conference/seminar related files
2. publications/white papers/notes and
3. engineering documents:
 - CAD drawings, cost estimates, vendor quotes, and QC documents.



Timeline (from Charge)

A progress report to the GDE should be made at the December 2005 meeting. It is hoped that a decision can be made early enough in 2006 that implementation, testing and backfilling of the archive can occur before the fourth meeting of the GDE in March 2006, with release to the general ILC community targeted to April 1, 2006.



Status of ILC EDMS

Recommendation of a product suite made:

- InDiCo – meeting management
- CERN Document Server – general documentation
- UGS TeamCenter – CAD and ILC “Lifecycle Management” (jargon for: part design, versions, manufactured instances, installation, operation, maintenance & decommissioning)

ILC Specific servers have been commissioned

- InDiCo: <http://ilcagenda.cern.ch/>
- CDS: <http://ilcdoc.cern.ch/>
- Collaborative CAD among DESY/FNAL/INFN using DESY-hosted UGS TeamCenter in progress



InDiCo: Description

- Outgrowth of CDS Agenda server with improvements directed towards conferences & workshops with continued support for meeting series & lectures
- Active development by-and-for physicists with integration with other meeting services (VRVS, video nets, etc.) planned

category | view: Indico style | manage | BARON, Thomas - logout

"IT-UDS Group Meeting" Thursday 25 August 2005 from 10:00 to 10:30
chaired by Tim Smith (CERN) at CERN (513-1-024)

Time Table: Thursday 25 August 2005

Thursday 25 August 2005 [top](#)

10:00	Introduction (10) (transparencies)	Tim Smith (CERN)
10:10	Video Conferencing with VRVS (10) (transparencies)	Joao Correia Fernandes
10:20	Discussion (05)	
10:25	Using Illustrator files with Powerpoint (10)	Darudh Birker
10:35	Discussion (05)	
10:40	Supporting the DG Office (10) (more information; transparencies)	Tony Shave
10:50	Discussion (05)	
10:55	IT BookShop: Past, Present and Future (10) (transparencies)	Roger Woolnough and Jutta Megies
11:05	Discussion (05)	

CERN | Powered by InDiCo 0.8.2 | indico-support@cern.ch | Last modified 20 September 2005 | [HELP](#)

Integrated Digital Conference | BARON, Thomas - logout

Category Map for Home

- Committee Meetings
 - Finance Review Committee of CAST
 - Finance Review Committee of COMPASS
 - Joint CERN-Pakistan Committee
 - CERN-Russia Joint Working Group
 - CERN-US Committee
- Conferences
- Departments
 - ETT
 - ETT-DH Meetings
 - Audio-Video
 - CDS Section Meetings
 - Section Leaders Minutes
 - miscellaneous
 - IT
 - test
 - Groups
 - UDS
 - AVC section
 - CDS Section
 - CERN Serco Management Review Meetings
 - Group Meeting
 - Presentations
 - Section Leaders Meeting
- Experiments
 - CMS Meetings
 - CMSCC
 - SPIE International Congress On Optics And Optoelectronics, Photonics Applications In Industry And Research (PA-IV)- (Photonics Applications in Industry and Research)
- TEST Category

Tools

- Display
- Overview
- Calendar
- ← Map
- Modify
- Admin
- Statistics



ILC InDiCo Server: Status

ILC Home

©MARKIEWICZ, Thomas - [logout](#)

Meetings Events Conferences TOOL

Tools

- Display
- Overview
- Calendar
- Map
- Modify
- Admin
- Statistics

Categories:

- Institutions (31)
- Machine Design (18)
- Detector Design & Physics Studies (0)
- Conference and Workshops (3)
- ILC-related Presentations Given at non-ILC Specific Events (0)
- Test Area (6)

The **Indico** tool allows you to manage complex conferences, workshops, and time-tables of meetings, to attach multimedia files to each event item and to store the resulting agendas in a multi-level hierarchical tree. If you want to use it for CERN-related projects, please contact [Indico support](#). Non-CERN institutes may install the Indico software locally under GNU General Public License (see the [project web site](#)).

CERN | Powered by [Indico 0.8.13](#) | indico-support@cern.ch | [HELP](#)

- Basic category “tree” implemented
- “Managers” appointed for each category
- Beta-testing in progress: ~500 meetings in system (up from 50 in March)
- Questions fielded by local experts or punted to CERN when required
- Start of a “Wish list,” “Bug List” & “Q&A” on EDMS wiki



CERN Document Server: Description

<http://cdsware.cern.ch>

- Outgrowth of CERN Preprint & Library Server
- Used by many institutes world wide (GNU distribution)
- At CERN, more than 500 collections:
 - All types of documents
 - Public or private collections

22-July-06 Approval process if Global Design Effort
VLCW06 Vancouver

CDSware
Integrated Digital Library

CERN Document Server integrated digital library software is a flexible system to run an electronic preprint server, an online digital library or a document repository on the web. It is especially suited for the management of large and complex data systems.

- Key features:**
- configurable portal-like interfaces for hosting various kind of collections
 - powerful search engine with Google-like syntax
 - extensible metadata representation (MARC XML) to handle virtually any kind of document (articles, books, photos, videos and more)
 - flexible document type submission and approbation workflow
 - user personalization, including document baskets and email notification alerts
 - multilingual interface (14 languages available), Unicode compliant (UTF-8)
 - compliant to Open Archive Initiative protocol for metadata harvesting
 - free software (GNU GPL)

Try the CERN server : <http://cdsweb.cern.ch/>
 Visit the project website : <http://cdsware.cern.ch/>
 Contact us : cds.support@cern.ch

CDSware is a project of the CERN Document Server

CDSware
Integrated Digital Library

Navigable collection tree

- Documents organized in collections
- Regular and virtual collection trees
- Customizable portalboxes for each collection
- At CERN, over 800,000 documents in 500 collections

Powerful search engine

- Specially designed indexes to provide Google-like search speed for repositories of up to 1,500,000 records
- Customizable simple and advanced search interfaces
- Combined metadata, fulltext and citation search in one go
- Results clustering by collection
- Flexible ranking capabilities

Multiple output formats : **HTML XML MARC OAI**

Powered by CDSware | <http://cdsware.cern.ch/>

CERN Document Server
CDSware
Integrated Digital Library

... to run your document repositories

<http://cdsware.cern.ch/>

Powered by CDSware | <http://cdsware.cern.ch/>

CDSware
Integrated Digital Library

Flexible metadata

- Standard metadata format (MARC)
- Unicode compliant (UTF-8)
- Handling articles, books, theses, photos, videos, museum objects, and more
- Customizable display and linking rules

User personalisation

- User-defined baskets of documents
- User-defined automated email alerts
- Basket sharing within user groups
- Search interface available in Catalan, Greek, German, Czech, English, Spanish, French, Italian, Norwegian, Portuguese, Russian, Slovak, Swedish, and Ukrainian translations

Powered by CDSware | <http://cdsware.cern.ch/>



ILC Document Server

ILC
DOCUMENT
SERVER

Search Submit Personalize Help

Home

ILC Document Server

Search 77 records for:

any field

[Search Tips](#) :: [Advanced Search](#)

Narrow by collection:

- [Publications & Notes](#) (68)
- [Articles & Preprints](#) (44) [Books & Reports](#) (24)
- [Engineering & Drawings](#) (0)
- [Conferences & Meetings](#) (0)
- [Multimedia & Arts](#) (9)
 - [Pictures](#) (7) [Poetry](#) (2)

Focus on:

- [ILC Institutions](#) (5)
- [Fermilab](#) (1) [SLAC](#) (4)
- [ILC Experiments](#) (2)
- [ALEPH](#) (1) [ISOLDE](#) (1)

ILC Document Server :: [Search](#) :: [Submit](#) :: [Personalize](#) :: [Help](#)
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Maintained by cds.support@cern.ch
Last updated: 21 Feb 2006 11:10:28 CET

CERN Document Server

Over 800,000 bibliographic records, including 360,000 fulltext documents, of interest to people working in particle physics and related areas. Covers preprints, articles, books, journals, photographs, and much more.

Search 830,544 records for:

any field

[Search Tips](#) :: [Advanced Search](#)

Narrow by collection:

- [Articles & Preprints](#) (679,720)
 - [Published Articles](#) (256,198) [Preprints](#) (346,803) [Theses](#) (35,980) [Reports](#) (5,455) [CERN Internal Notes](#) (10,307) [Committee Documents](#) (26,428)
- [Books & Proceedings](#) (55,981)
 - [Books](#) (32,686) [Proceedings](#) (15,489) [Standards](#) (7,806)
- [Presentations & Talks](#) (14,945)
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- [Periodicals & Progress Reports](#) (3,372)
 - [Periodicals](#) (2,690) [Progress Reports](#) (682)
- [Multimedia & Outreach](#) (28,690)
 - [Photos](#) (9,031) [Videos](#) (184) [Press](#) (16,001) [Audio Archives](#) (158) [Exhibition Objects](#) (179) [Brochures](#) (15) [Posters](#) (334) [HEP Institutes](#) (924) [Experiments at CERN](#) (733) [Internet Resources](#) (1,094)
- [Archives](#) (33,217)
 - [CERN Archives](#) (47,094) [Pauli Archives](#) (3,711) [DSU Archives](#) (701) [SL Archives](#) (1,026) [AB Archives](#) (685)

Focus on:

- [CERN Articles & Preprints](#) (86,447)
- [CERN Published Articles](#) (45,374) [CERN Preprints](#) (11,177) [CERN Theses](#) (2,470) [CERN Reports](#) (1,052) [Committee Documents](#) (26,428)
- [CERN Departments](#) (39,822)
 - [Accelerator Technology \(AT\)](#) (4,451) [Accelerators & Beams \(AB\)](#) (14,466) [Finance \(FI\)](#) (616) [Human Resources \(HR\)](#) [Information Technology \(IT\)](#) (2,071) [Physics \(PH\)](#) (34,808) [Secretariat-General \(SG\)](#) (6,337) [Technical Support \(TS\)](#) (1,042)
- [CERN Experiments](#) (13,290)
 - [LEP Experiments](#) (4,932) [LHC Experiments](#) (8,362)
- [CERN R&D Projects](#) (45)
- [CERN Accelerator R&D Projects](#) (45)
- [CERN Series](#) (2,941)
- [CERN Yellow Reports](#) (1,094) [Academic Training Lectures](#) (523) [Summer Student Lectures](#) (340) [General Talks](#) (1,387)

- Site created so that ILC can understand how to best set “collection” types, “category” types and work flow (approval chain)
- NO ILC customization or testing done yet
- No ILC Beta tests of critical documents (BCD,RDR) or collections (TN-2006-0001)

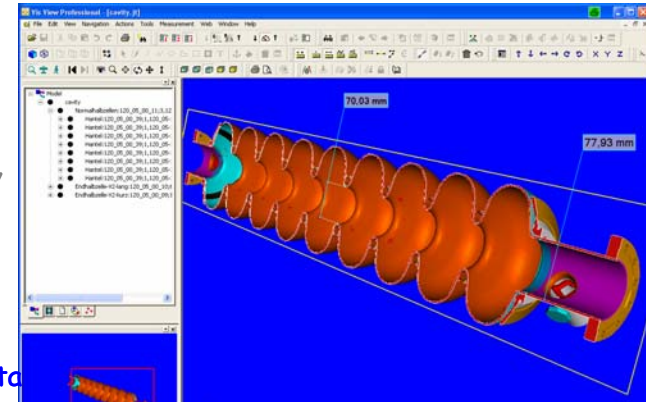
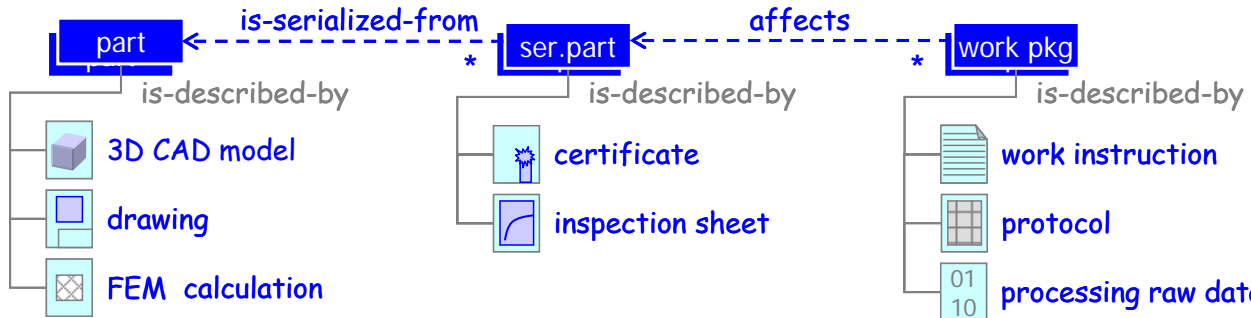


Team Center EDMS

design view
hierarchy of assemblies & parts

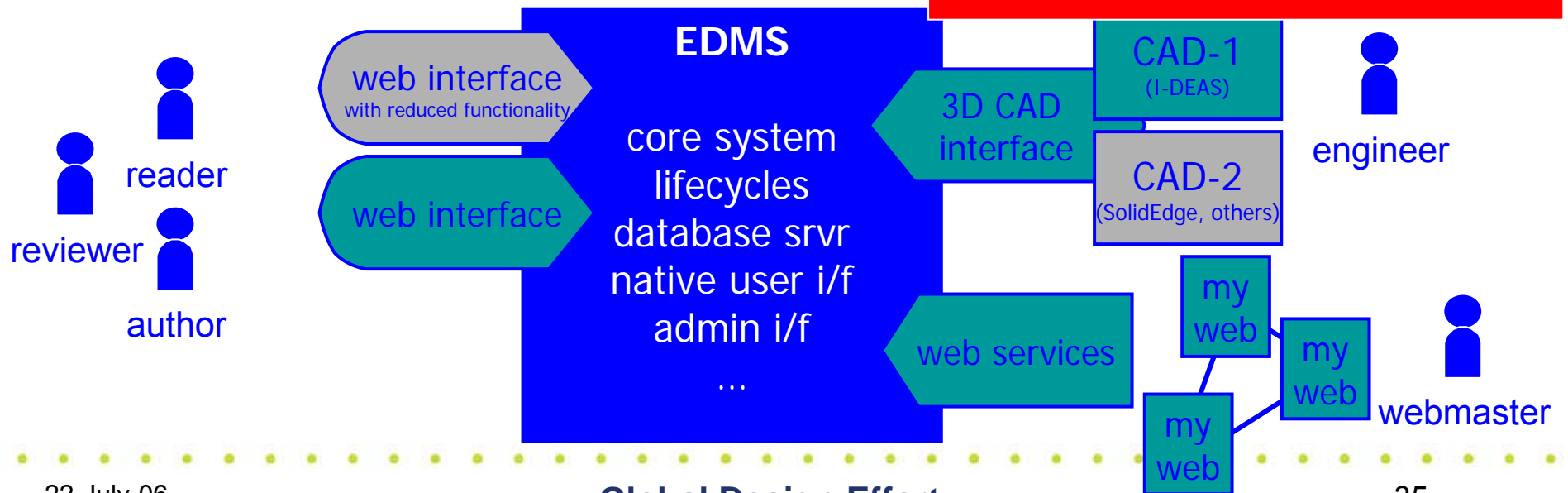
manufacturing view
hierarchy of serialized parts

conditioning view
sequence of work packages



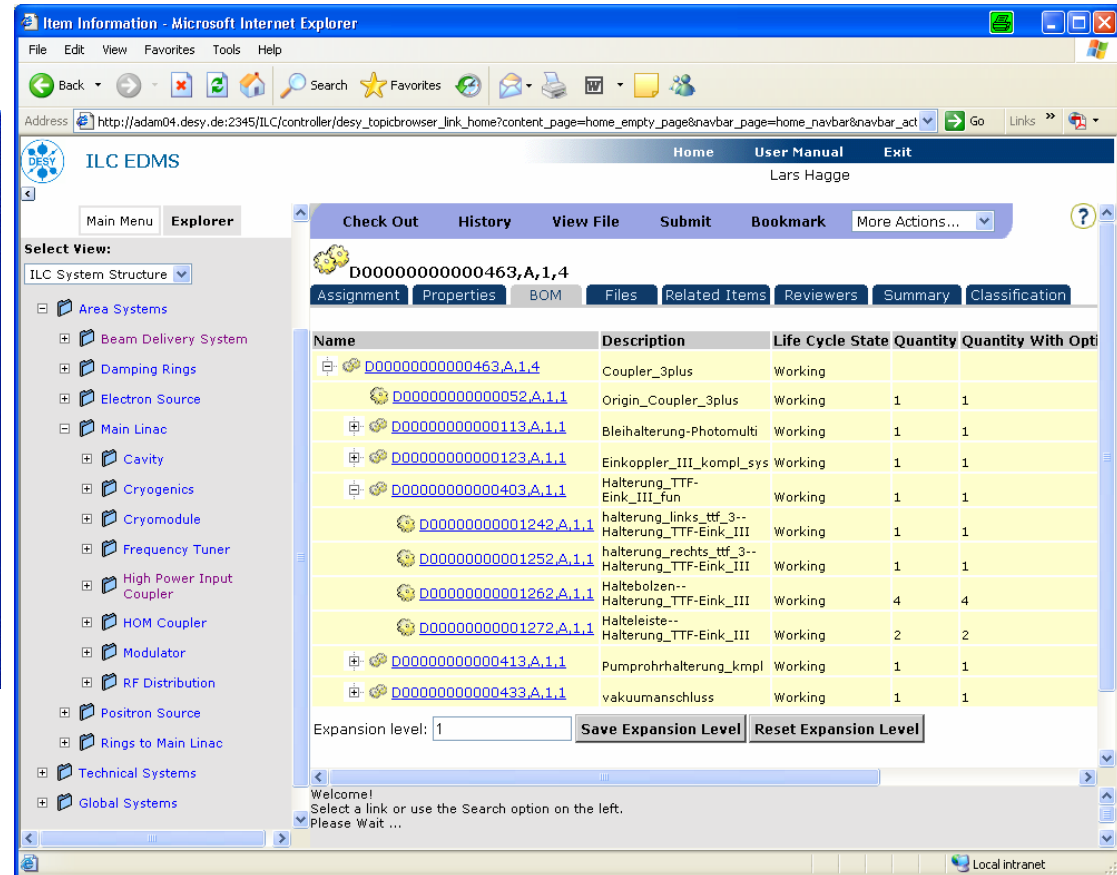
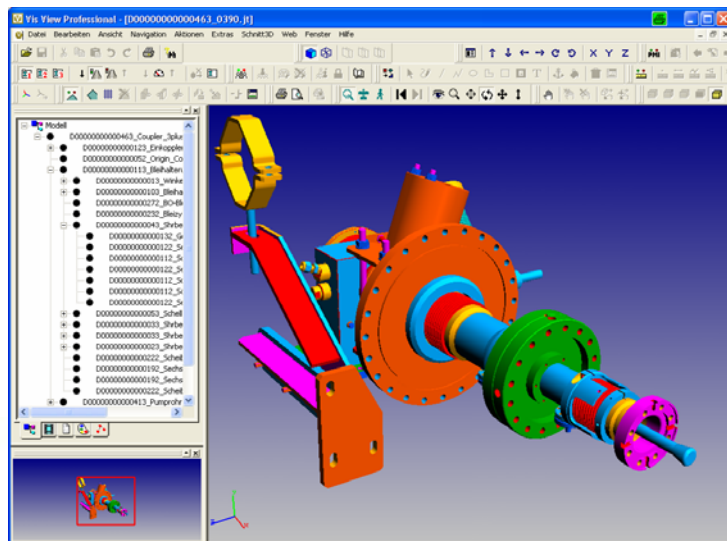
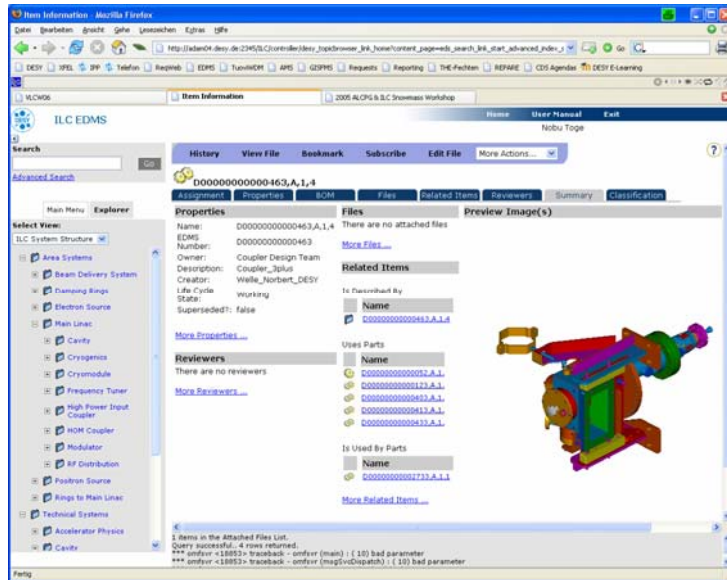
Product Lifecycle Mgmt

3D Interactive Visualization for Non-CAD-Users





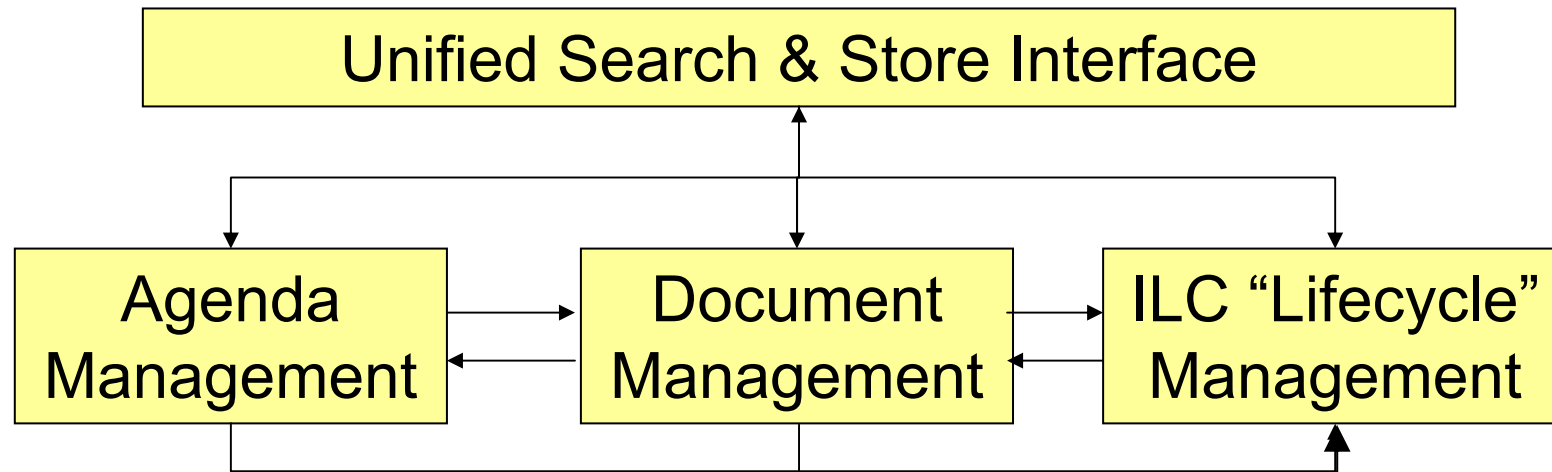
DESY EDMS Web Client showing part data



- component summary tab (top left)
- bill of material (top right)
- JT viewer with 3D Data (bottom left)



Eventual Top Level Architecture



International Accelerator School for Linear Colliders

May 19 - 27, 2006 ♦ Sokendai, Hayama, Japan

Organized by ILC GDE, ICFA Beam Dynamics Panel and the International Linear Collider Steering Committee

ILC International Linear Collider



Organizing Committee

Barry Barish (GDE/Caltech, Chair)
Shin-ichi Kurokawa (ILCSC/KEK)
Weiren Chou (ICFA BD Panel/Fermilab)
Rolf-Dieter Heuer (DESY)
Jean-Pierre Delahaye (CERN)
In Soo Ko (PAL)
Kaoru Yokoya (KEK)
Alex Chao (SLAC)
Paul Grannis (US DOE)

Local Committee

Shin-ichi Kurokawa (KEK, Chair)
Junji Urakawa (KEK)
Kaoru Yokoya (KEK)
Satoru Yamashita (U. of Tokyo)

Curriculum Committee

Weiren Chou (Fermilab, Chair)
Alex Chao (SLAC)
Michiko Minty (DESY)
Carlo Pagani (Milano)
Junji Urakawa (KEK)
Jie Gao (IHEP/China)
Eun-Saŋ Kim (PAL)

TOPICS

LINEAR COLLIDER BASICS
SUPER CONDUCTING & WARM RF TECHNOLOGY
BEAM DYNAMICS OF COLLIDER LINAC & DAMPING RINGS
ILC AND ITS MAJOR SYSTEMS
CLIC
DETECTORS AND PHYSICS



- **America:**
 - Total US\$70k: DOE \$50k, Fermilab \$10k, SLAC \$10k
 - Supported 19 students, 7 lecturers
- **Asia:**
 - KEK supported 36 students, 7 lecturers
 - KEK also covered all local expenses (meeting rooms, A/V, school supplies, computers, local transportation, field trip, banquet, video taping, etc.)
- **Europe:**
 - CERN: 5 students (one from Poland), 2 lecturers
 - DESY: 4 students, 2 lecturers
 - INFN: 2 students, 2 lecturers
 - IN2P3: 5 students (one from Russia)
 - U.K.: Oxford - 1 student, CCLRC - 1 student, EuroTeV - 1 student



Program

	Saturday, May 20	Sunday, May 21	Monday, May 22	Tuesday, May 23
Morning 09:00 – 12:30	<p>Opening remarks (10)</p> <p>Lecture 1 – Introduction I (90) Fumihiko Takasaki (KEK)</p> <ul style="list-style-type: none"> • Why LC • What's ILC • Layout of ILC • Overview of issues <p>Lecture 2 – Introduction II (90) Tor Raubenheimer (SLAC)</p> <ul style="list-style-type: none"> • Parameter choices & optimization 	<p>Lecture 5 – Damping ring basics (180) Susanna Guiducci (INFN-LNF)</p> <ul style="list-style-type: none"> • Betatron motion • Synchrotron motion • Beam energy • Beam emittance • Radiation damping • Intrabeam scattering 	<p>Lecture 7 – ILC Linac basics (90) Chris Adolphsen (SLAC)</p> <ul style="list-style-type: none"> • Linac basic principles • SW linacs and structures • SRF parameter constraints • Beam loading and coupling • Lorentz force detuning <p>Lecture 8 – ILC Linac beam dynamics (90) Kiyoshi Kubo (KEK)</p> <ul style="list-style-type: none"> • Lattice layout • Beam quality preservation <ul style="list-style-type: none"> ◦ RF field stability ◦ Wakefield and dampers ◦ HOMs ◦ Alignment tolerances ◦ Vibration problems ◦ Beam based alignment 	<p>Lecture 9 – High power RF (60) Stefan Choroba (DESY)</p> <ul style="list-style-type: none"> • RF system overview • Modulators • Klystrons • RF distribution <p>Lecture 10 – SRF basics (120) Shuichi Noguchi (KEK)</p> <ul style="list-style-type: none"> • Superconductivity basics • SRF peculiarities • Cavity design criteria • Various constraints • ILC BCD Cavity
Afternoon 14:00 – 17:30	<p>Lecture 3 – Sources (120) Masao Kuriki (KEK)</p> <ul style="list-style-type: none"> • e- gun • e+ sources • Polarized sources <p>Lecture 4 – Bunch compressors (60) Eun-San Kim (Kyungpook Nat'l Univ.)</p> <ul style="list-style-type: none"> • Bunch compressors • Spin rotator 	<p>Lecture 6 – Damping ring design (180) Andy Wolski (Univ. of Liverpool)</p> <ul style="list-style-type: none"> • Options • Lattice • Parameter optimization • Machine acceptance • E-cloud, space charge and instability issues • Wigglers • Kickers and other technical systems 	<p>Field trip to Kamakura</p>	<p>Lecture 11 – SRF cavity technology (180) Peter Kneisel (Jlab)</p> <ul style="list-style-type: none"> • Material issues • Cavity fabrication and tuning • Surface preparation • Gradient limit and spread • Power Coupler • HOM Couplers • Slow and fast tuner • Path to ILC
Evening 19:00 – 20:30	Tutorial & homework	Tutorial & homework	Tutorial & homework	Tutorial & homework



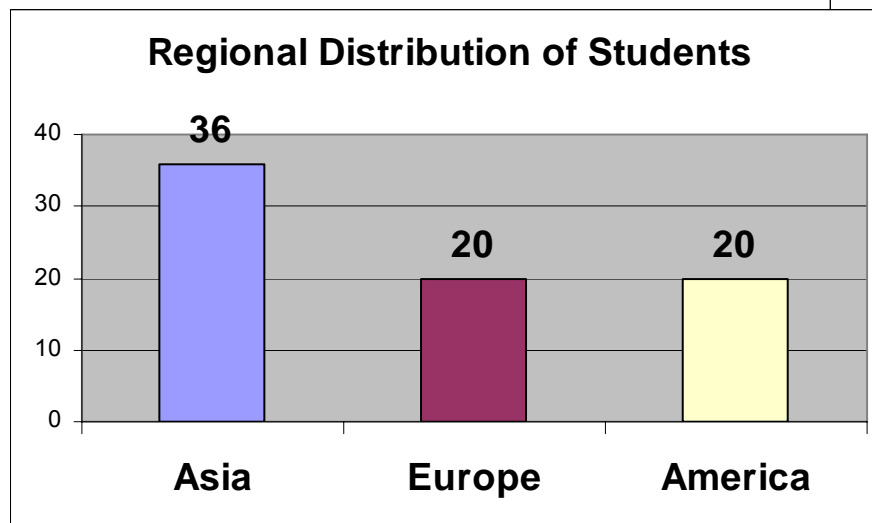
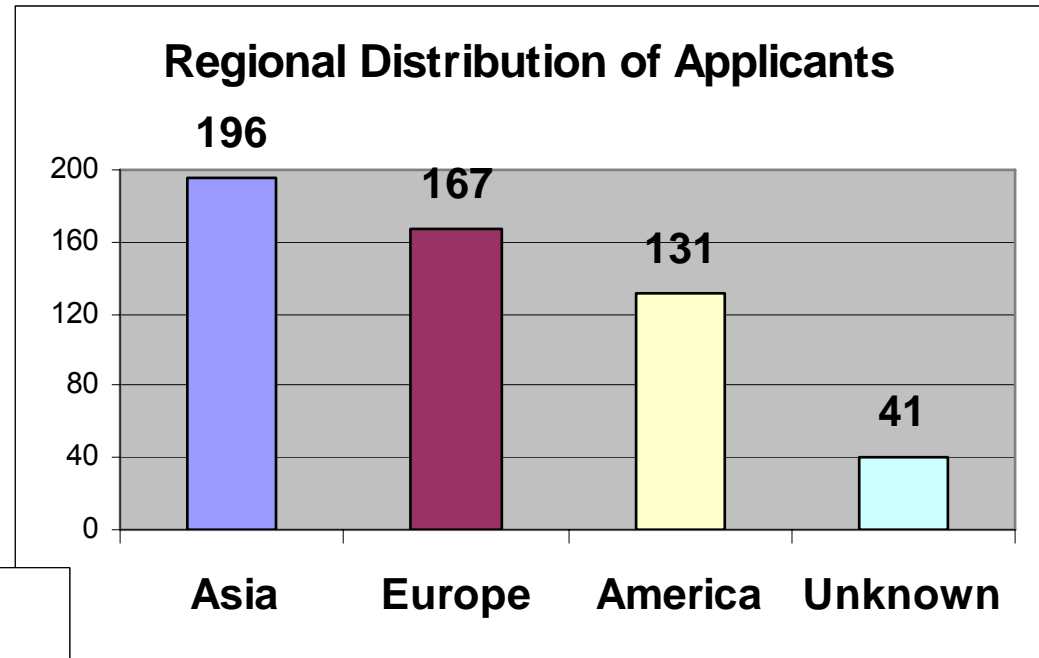
Program (cont...)

	Wednesday, May 24	Thursday, May 25	Friday, May 26	Saturday, May 27
Morning 09:00 – 12:30	<p>Lecture 12 – ILC cryomodule (60) Carlo Pagani (INFN-Milano)</p> <ul style="list-style-type: none"> • ILC cryogenics and rational • ILC cryomodule concept <p>Lecture 13 – Room-temperature RF (120) Hans Braun (CERN)</p> <ul style="list-style-type: none"> • Room temperature cavity and gradient limit • CLIC design 	<p>Lecture 16 – Instrumentation & feedback (180) Marc Ross (SLAC)</p> <ul style="list-style-type: none"> • Beam monitoring • Precision instrumentation • Feedback systems 	Bus from Sokendai to KEK	<p><i>Group A:</i> Lecture 19 – Detectors (90) Hitoshi Yamamoto (Tohoku Univ.)</p> <ul style="list-style-type: none"> • ILC detectors <p>Lecture 20 – Physics (90) Rolf-Dieter Heuer (DESY)</p> <ul style="list-style-type: none"> • ILC physics • Physics beyond 1 TeV • e-e- and γ-γ options • ILC and XFEL <p><i>Group B:</i> Special lecture – ATF (60) Junji Urakawa (KEK)</p> <p>ATF experiments (120)</p>
Afternoon 14:00 – 17:30	<p>Lecture 14 – Beam delivery (120) Andrei Seryi (SLAC)</p> <ul style="list-style-type: none"> • Beam delivery system overview • Collimation • Machine-detector interface, shielding and beam dump • Beam monitoring and control at final focus <p>Lecture 15 – Beam-beam (60) Daniel Schulte (CERN)</p> <ul style="list-style-type: none"> • Beam-beam interaction 	<p>Lecture 17 – Conventional facilities (90) Vic Kuchler (Fermilab)</p> <ul style="list-style-type: none"> • Overview • Tunneling • Site requirement <p>Lecture 18 – Operations (90) Marc Ross (SLAC)</p> <ul style="list-style-type: none"> • Reliability • Availability • Remote control and global network 	<p>KEK tour</p> <ul style="list-style-type: none"> • B-Factory • Photon Factory • SRF • ATF 	<p><i>Group B:</i> Lecture 19 – Detectors (90) Hitoshi Yamamoto (Tohoku Univ.)</p> <p>Lecture 20 – Physics (90) Rolf-Dieter Heuer (DESY)</p> <p><i>Group A:</i> Special lecture – ATF (60) Junji Urakawa (KEK)</p> <p>ATF experiments (120)</p> <p><i>Group A & B:</i> Student awards ceremony Farewell party</p>
Evening 19:00 – 20:30	Tutorial & homework	Banquet Tutorial & homework	Free time	Free time



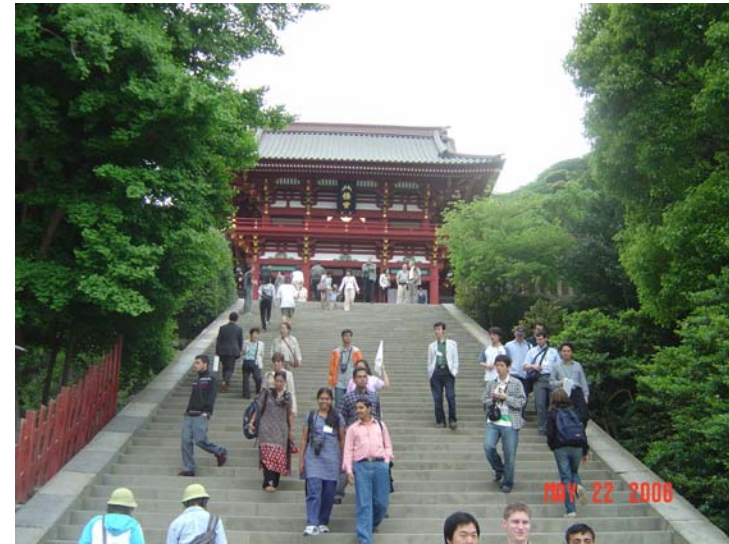
Students

- In six weeks (Jan 5 – Feb 15) we received 535 applications from 44 countries
- 74 students attended the school





Work hard, play hard – Kamakura field trip



Yamamoto's tea ceremony

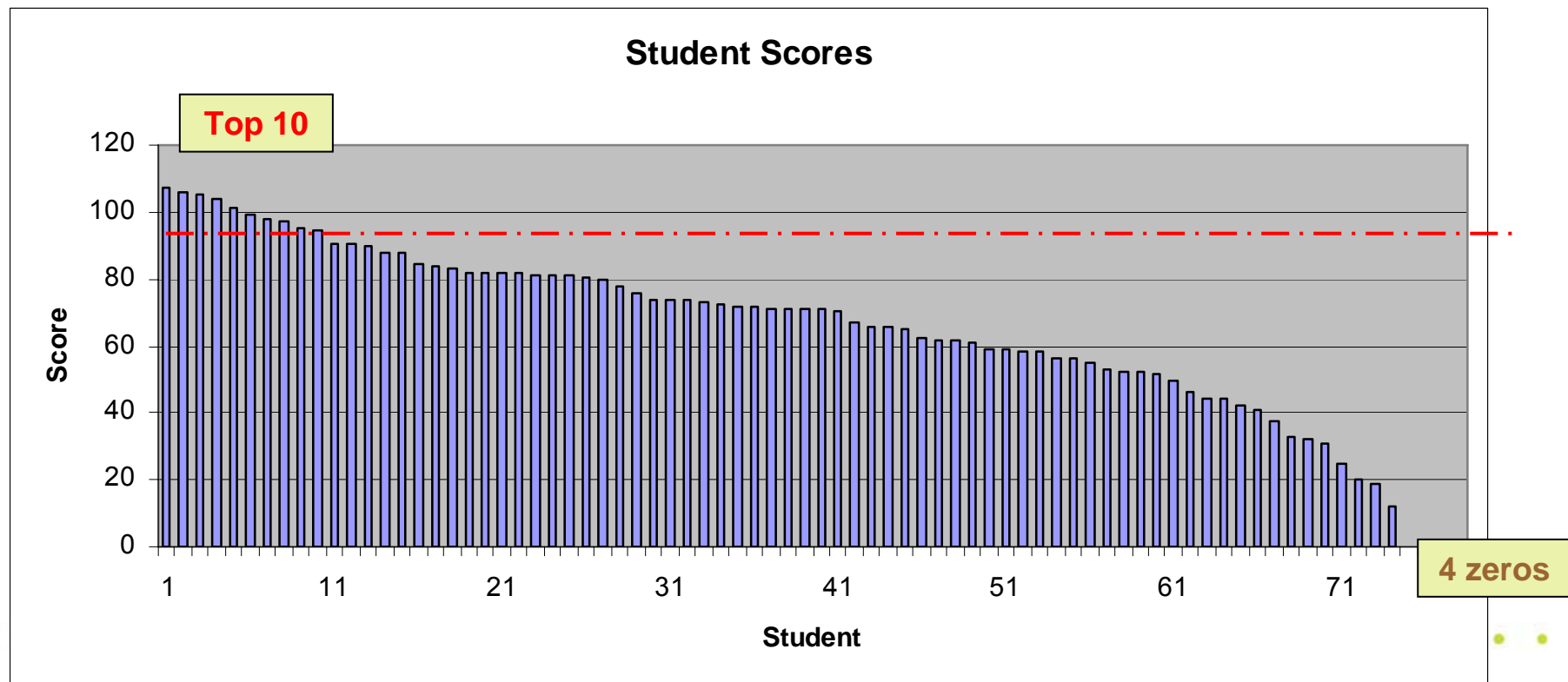




Homework Grades

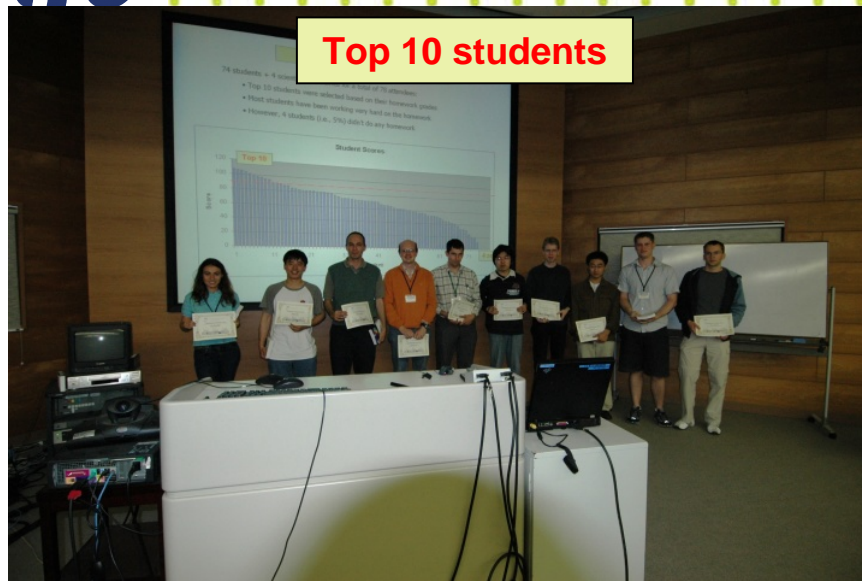
74 students + 4 scientific secretaries for a total of 78 attendees:

- Top 10 students were selected based on homework grades.
- Most students worked very hard on homework.





Awards Ceremony



Top 10 students



Certificate



Book

Appreciation time

Yoko Hayashi



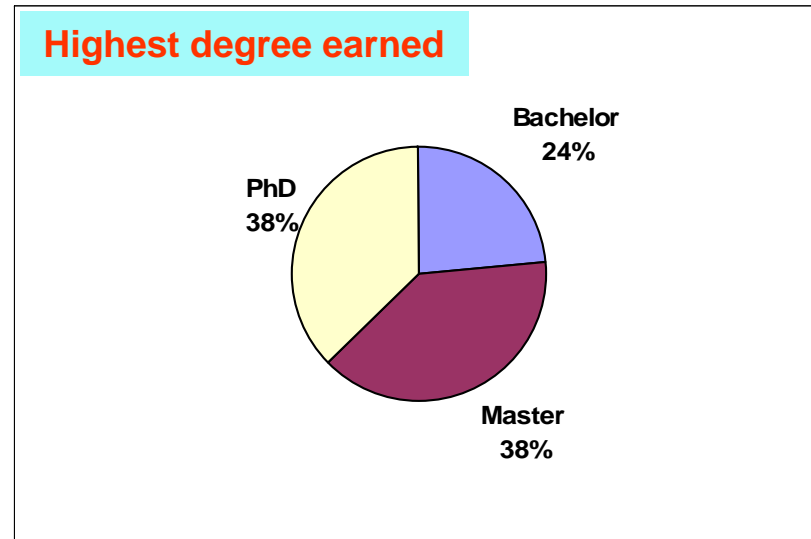
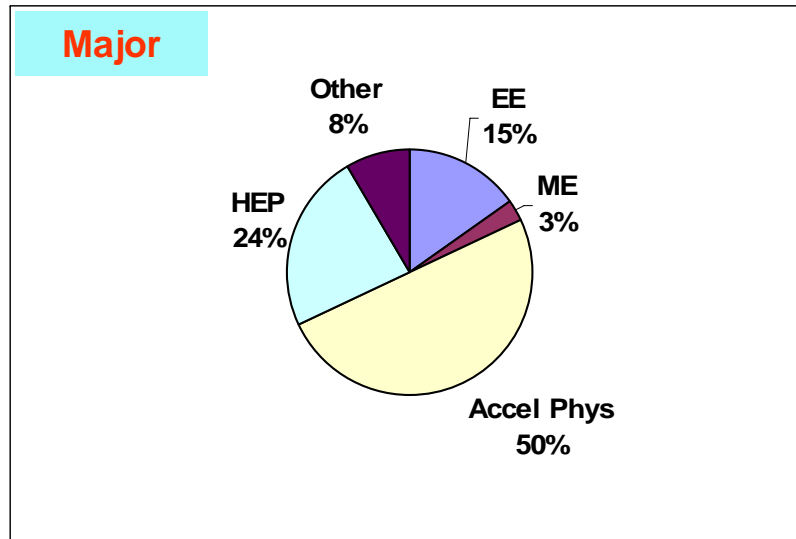
Scientific secretaries



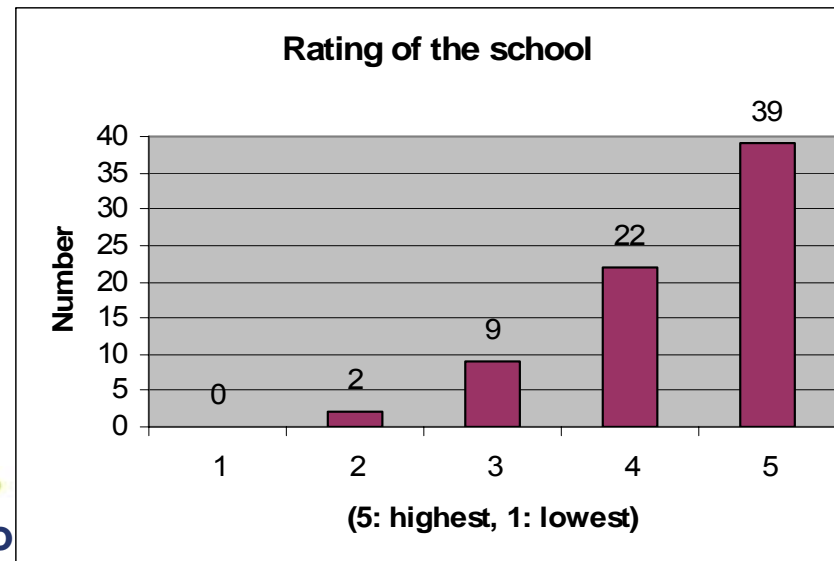


Student Survey

- Student distribution:



- Student rating of the school:



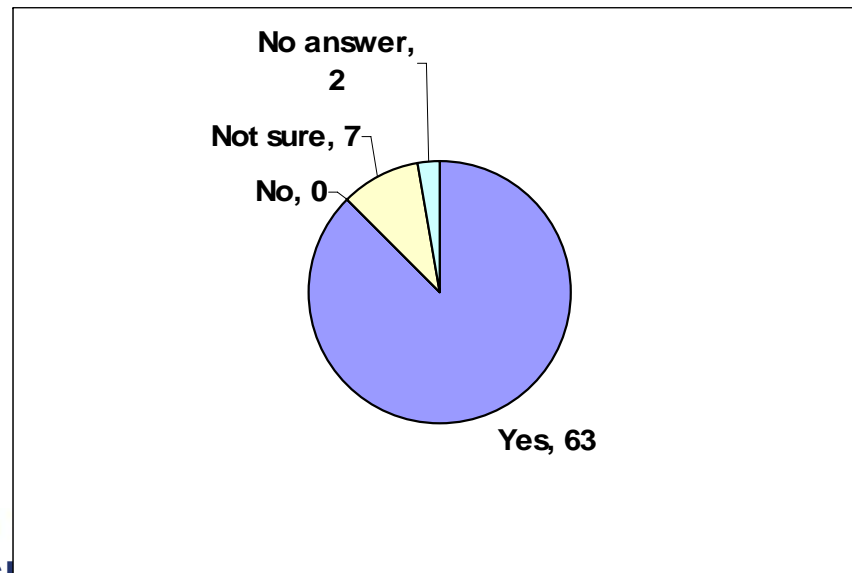


Student Survey (cont...)

- Will you recommend this school to your fellow students or colleagues?



- If opportunity available, do you plan to work on the ILC or linear colliders in the future?





Next School

- **The GDE Executive Committee has decided to propose to sponsor and organize a second school**
- **The proposal will be presented to the ILCSC and ICFA meeting on July 30th also in Moscow.**
- **ICFA approval is essential in order to get world-wide support for funding.**
- **Possible place: Naturally it will be in the U.S. or Europe. Another candidate is China, which expressed interest to host it.**
- **Possible time: Either next year or the following year. We will ask ILCSC and ICFA for their blessing and advice on time and venue**



Brau – ALCPG Plenary

Beyond the DCR

- GDE plans TDR at end of 2009
- Experiments must remain on same timeline as machine \Rightarrow Detector TDRs ~2010 ?
 - “synchronize” detectors with the machine
- TDRs require significant resources over time
 - 2 years? or more?
- How do we get there?
 - Downselect of detectors?
 - Authority to do this?
 - Intermediate step? CDR?

 - Discussion in WWS-OC and with GDE



Final Remarks