

The Way Forward

A large, spreading tree with yellow and green leaves in a field. The tree is the central focus, with its branches extending across the frame. The leaves are a mix of bright yellow and green, suggesting autumn. The background shows a green field and a stone wall in the foreground.

Francois R. Le Diberder
LCB European member, nominated by ECFA to represent Detectors&Physics LC-community



THE INTERNATIONAL LINEAR COLLIDER

ILC
International Linear Collider

A greatman agreement

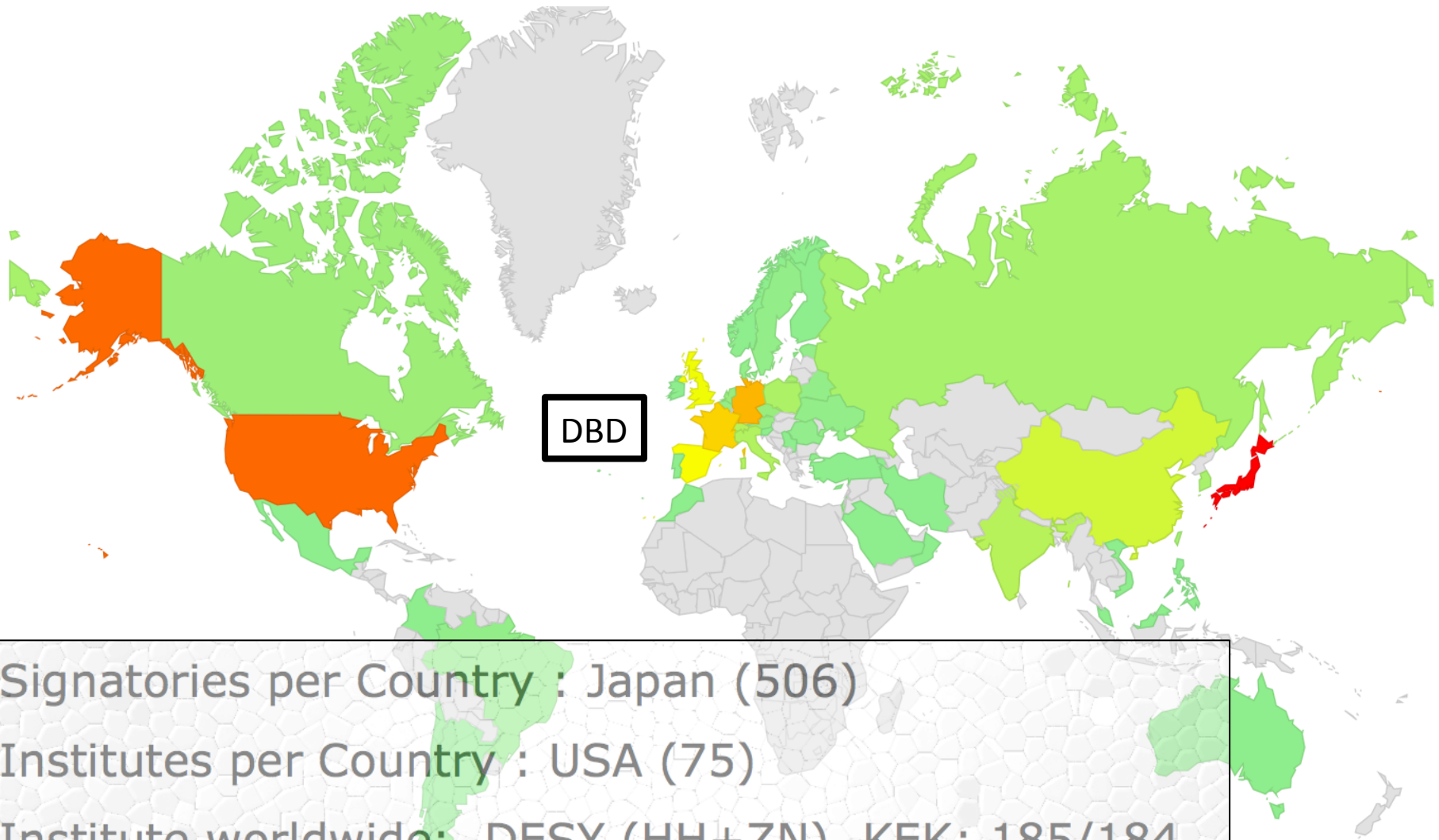
March 2005

June 2013

“As compared to other projects of similar scale (ITER, LHC, ATLAS, CMS, ALMA, XFEL, FAIR, ESS, SSC) the quality of the documentation presented by the GDE team is equal or superior to that utilized to launch into a similar process.”

The ILC is good to go!





Signatories per Country : Japan (506)

Institutes per Country : USA (75)

Institute worldwide: DESY (HH+ZN), KEK: 185/184

Region: Europe (1185)

and in Fall 2012 CLIC CDR was finalized



LINEAR COLLIDER COLLABORATION

Designing the world's next great particle accelerator

Director : Lyn Evans

And Light came

from Japan



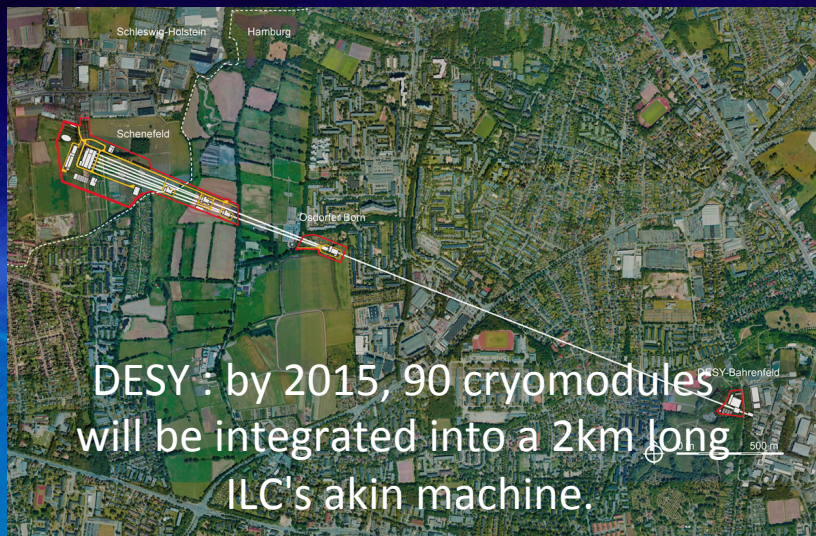


And Japan started high level international discussions



Our next challenge

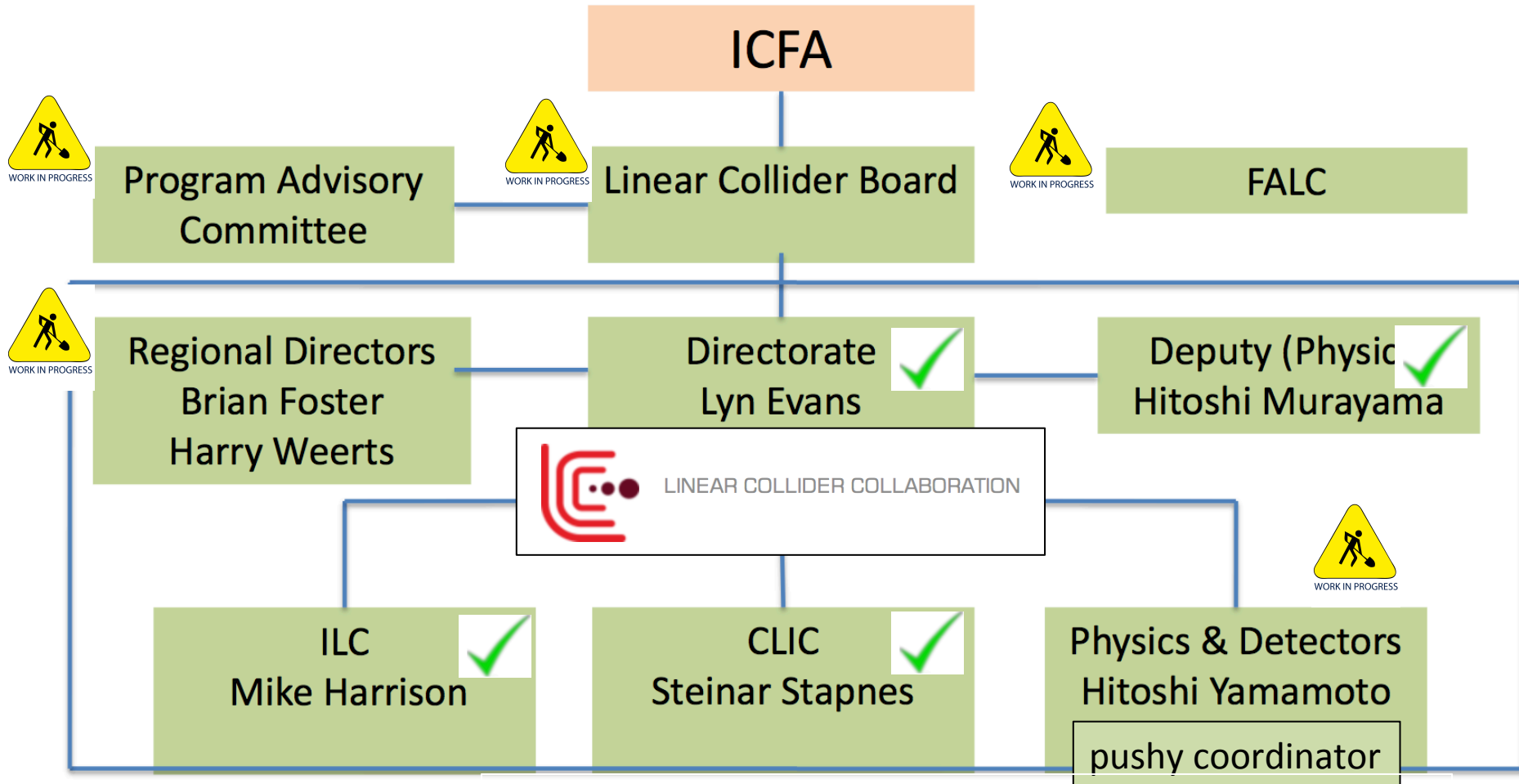
The Way Forward



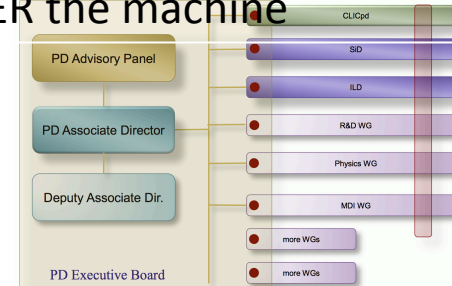
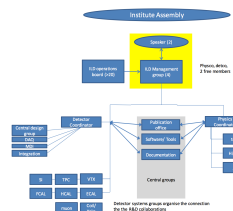
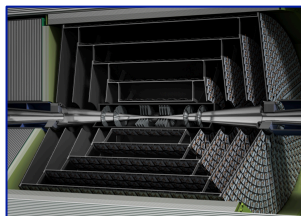
Is levitation under limited funding

We must be resolute, focused, proactive, and avoid entropy

Organization



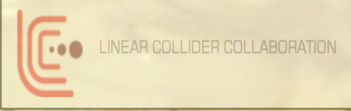
Detectors must not be ready AFTER the machine





Moving from the “Dream Machine” to are tunnel heights OK for the magnet ?

WELCOME



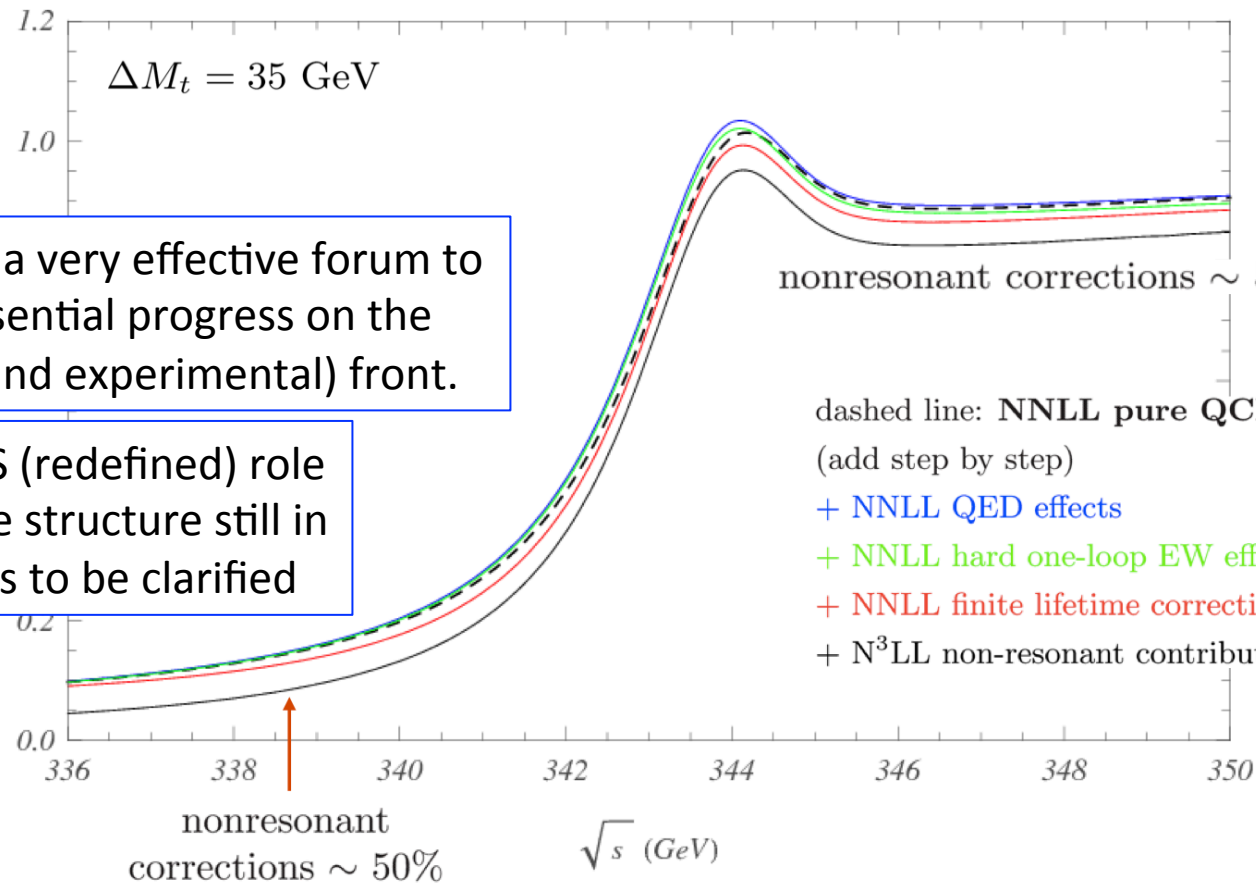
Faire prendre la mayonnaise



Worldwide Study of the Physics and Detectors for future linear $e^+ e^-$ colliders



Cut on bW invariant masses of the form $|\sqrt{p_{t,\bar{t}}^2} - m_t| \leq \Delta M_t$



Proved to be a very effective forum to foster the essential progress on the theoretical (and experimental) front.

WWS (redefined) role in the structure still in needs to be clarified

Model plan of assuming the site area 80ha

The main building and central open space as the core of the campus

An Assumption for Numbers of Persons (whole) Laboratory (more than the number in TDR)

- Study of a Common Subject:
the ILC Central-Campus Design**
- **Functions?:**
 - As the headquarters and a hub-laboratory
 - **Location?:**
 - with adequate distance to the ILC facility and to public-city/living area
 - **How many Persons to work/live ?:**
 - as employees, sub-contractors, scientific/technical user, families, and others,
 - to dynamically change according to the project stages,
 - **Which kind of facilities and buildings ?:**
 - For facilities/building, and area/environment design

	Under construction Peak (8Th year.)	Operation start (11Th year.)	In operation (15Th year.)	In operation (20Th year.)
Laboratory Staffs #1	1,600	1,200	1,200	1,200
Experiment participants #2	500	700	800	1,000
Laboratory Supporters #3	300	300	400	500
Total	2,400	2,200	2,400	2,700

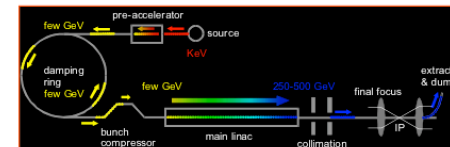
#1: including the regular/permanent staff and temporary staff (Post-Doc),
#2: including researchers, engineers and students for two experiments,
#3: including subcontracted specialist to support acc. & exp. activities

Survey/Study proceeded with visiting:

- CERN
- ITER,
- CEA/Saclay,
- OIST (Okinawa),
- Universities,
- KEK/JAEA,



Further R&D/Engineering Study required



Please provide feed-backs to Akira Yamamoto.

What is first needed is a firm evaluation of the population&lab size.

More precise requests to come when site selection will be done.

- **Positron source:** Rotating target, alternate solution/backup
- **Damping ring:** Undulators, 650 MHz SCRF
- **RTML:** Quadrupole magnet with HTS?
- **ML:** Cavity integration, CM design, HLRF demonstration...
- **BDS:** Final focusing, beam stability, alignment w/ tighter tolerance
- **Beam Dynamics:** Accurate lattice design based on the specific site
- **CFS:** Site specific work including Central Campus design and others
- **General engineering:** such as drawing coordination (rules)

May 30th

CERN Council approved updates European strategy for particle physics, yesterday

A very important issue for the strategy is preserving and building on the European model for cross-border research.

CERN, in close collaboration with research institutions in the CERN Member States and under the guidance of the CERN Council, will coordinate future European engagement with global particle physics projects in other regions.

The strategy notes that cross-border collaboration in science, as exemplified by the CERN model, pays dividends for Europe in terms of knowledge, innovation, education and training.





As far as Europe is concerned: it could be wise to set-up a get-together (after LCWS2013?) to see how to come up with a “FP8” common approach.

Four reminders




26th International Symposium on **LEPTON PHOTON** INTERACTIONS at HIGH ENERGIES

24-29 June, 2013
UCSF Mission Bay Campus, San Francisco, CA USA
Hosted by SLAC National Accelerator Laboratory



Please take time out to register for Lepton Photon today! The deadline for early registration is tomorrow, on Saturday the rates will increase.

 University of Washington

Department of Physics | Research

SNOWMASS ENERGY FRONTIER WORKSHOP

June 30 – July 3, University of Washington, Seattle



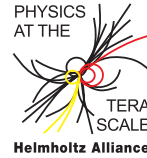
Snowmass on the Mississippi (July 29 - August 6, 2013)

- Order of programs
 - Japan (Tokyo)
 - Europe (CERN)
 - US/Canada (Fermilab)



Helmholtz Alliance

PHYSICS AT THE TERASCALE



Deutsches Elektronen-Synchrotron DESY +++ Karlsruher Institut für Technologie - Großforschungsbereich +++ Max-Planck-Institut für Physik München +++ Rheinisch-Westfälische Technische Hochschule Aachen +++ Humboldt-Universität zu Berlin +++ Rheinische Friedrich-Wilhelms-Universität Bonn +++ Technische Universität Dortmund +++ Technische Universität Dresden +++ Albert-Ludwigs-Universität Freiburg +++ Justus-Liebig-Universität Gießen +++ Georg-August-Universität Göttingen +++ Universität Hamburg +++ Ruprecht-Karls-Universität Heidelberg +++ Karlsruher Institut für Technologie - Universitätsbereich +++ Johannes Gutenberg-Universität Mainz +++ Ludwig-Maximilians-Universität München +++ Universität Regensburg +++ Universität Rostock +++ Universität Siegen +++ Julius-Maximilians-Universität Würzburg +++ Bergische Universität Wuppertal +++

Fourth Linear Collider Physics School

An introduction to the physics of Linear Colliders

7 - 9 October 2013

DESY, Hamburg

Covered Topics

- Accelerators & Detectors
- Higgs & Electroweak Physics
- Top Physics
- Beyond Standard Model Physics
- Relation to LHC and B-Factories

International Advisory Committee

S. Bertolucci (CERN)
P. Burrows (Oxford)
S. Chattopadhyay (CI)
C. Damerell (RAL)
B. Foster (Oxford)
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R. Godbole (Bangalore)
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M. Thomson (Cambridge)
H. Weerts (Argonne)
S. Yamada (KEK)

The LC School will be followed by
the Helmholtz Linear Collider Forum
9-11 October 2013, Hamburg, DESY.
<http://lcforum.desy.de>

Programme and Organising Committee: K. Buesser (DESY), I. Fleck (Siegen), J. List (DESY), G. Moortgat-Pick (Hamburg), J. Reuter (DESY), S. Riemann (DESY), T. Schörner-Sadenius (DESY), F. Simon (MPI for Physics), A. Sopczak (Prague), Z. Nagy (DESY)

Registration please see:

<https://indico.desy.de/conferenceDisplay.py?confid=7513>



*Please inform and invite your students !
Registration opens next week.*

Followed by

Linear Collider Forum

9-11 October 2013

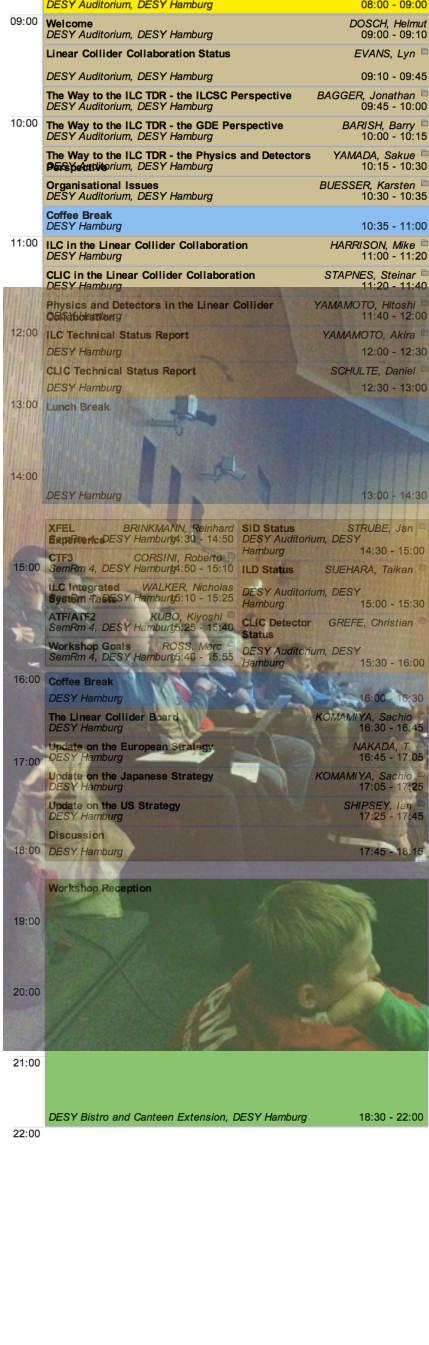
Next school August 2014

Frauenchiemsee



08:00	Registration	
	DESY Auditorium, DESY Hamburg	08:00 - 09:00
09:00	Welcome	
	DESY Auditorium, DESY Hamburg	DOSCH, Helmut 09:00 - 09:10
	Linear Collider Collaboration Status	
	DESY Auditorium, DESY Hamburg	EVANS, Lynn 09:10 - 09:45
	The Way to the ILC TDR - the ILCSC Perspective	
	DESY Auditorium, DESY Hamburg	BAGGER, Jonathan 09:45 - 10:00
10:00	The Way to the ILC TDR - the GDE Perspective	
	DESY Auditorium, DESY Hamburg	BARISH, Barry 10:00 - 10:15
	The Way to the ILC TDR - the Physics and Detectors	
	DESY Auditorium, DESY Hamburg	YAMADA, Sakue 10:15 - 10:30
	Organisational Issues	
	DESY Auditorium, DESY Hamburg	BUESSER, Karsten 10:30 - 10:35
	Coffee Break	
	DESY Hamburg	10:35 - 11:00
11:00	ILC in the Linear Collider Collaboration	
	DESY Hamburg	HARRISON, Mike 11:00 - 11:20
	CLIC in the Linear Collider Collaboration	
	DESY Hamburg	STAPNES, Steinar 11:20 - 11:40
	Physics and Detectors in the Linear Collider	
	DESY Hamburg	YAMAMOTO, Hitoshi 11:40 - 12:00
12:00	ILC Technical Status Report	
	DESY Hamburg	YAMAMOTO, Akira 12:00 - 12:30
	CLIC Technical Status Report	
	DESY Hamburg	SCHULTE, Daniel 12:30 - 13:00
13:00	Lunch Break	
	DESY Hamburg	13:00 - 14:30
	XFEL	
	DESY Hamburg	BRINKMANN, Reinhard 14:30 - 14:50
	CTF3	
	DESY Hamburg	CORSINI, Roberto 15:00 - 15:25
	ILC Integrated System	
	DESY Hamburg	WALKER, Nicholas 15:10 - 15:25
	ATF/ATF2	
	DESY Hamburg	KUBO, Kiyoshi 15:25 - 15:40
	Workshop Goals	
	DESY Hamburg	ROSS, Marc 15:40 - 15:55
16:00	Coffee Break	
	DESY Hamburg	16:00 - 16:30
	The Linear Collider Board	
	DESY Hamburg	KOMAMIYA, Sachio 16:30 - 16:45
	Update on the European Strategy	
	DESY Hamburg	NAKADA, T. 16:45 - 17:05
	Update on the Japanese Strategy	
	DESY Hamburg	KOMAMIYA, Sachio 17:05 - 17:25
	Update on the US Strategy	
	DESY Hamburg	SHIPSEY, Ian 17:25 - 17:45
18:00	Discussion	
	DESY Hamburg	17:45 - 18:15
	Workshop Reception	
	DESY Hamburg	18:15 - 18:30
19:00	Das Higgs Teilchen: Was haben wir davon?	
	DESY Hamburg	18:30 - 19:00
21:00	ESA B, University of Hamburg - Main Building	
	DESY Hamburg	19:00 - 19:30
22:00	DESY Bistro and Cariten Extension, DESY Hamburg	
	DESY Hamburg	18:30 - 22:00

09:00	Charged particle physics	CLIC Optims of the MDI Status	The SPS as a RTML	ILC Overview	Industri Design & Integr	Accel Design & Integr	TDR Event Organisation (close session)	ILC ODO Status	High Power & Coupl	Accel Design & Integr	ATF2 Status	Higgs physics	Gamma-Plan of Deton	High QE and High	Fabricat and Quality	Accel Design & Integr	Joint Lini Perform Session	LCC mgmt (closed)	
09:00	DEPFET R&D status	Results of the ILC MDI Status	Impede budget and	ILC Overview	Industri Design & Integr	Accel Design & Integr	Why? Opportun...	The perform...	High Power & Coupl	Accel Design & Integr	ATF2 Status	Higgs physics	Gamma-Plan of Deton	High QE and High	Fabricat and Quality	Accel Design & Integr	Joint Lini Perform Session	LCC mgmt (closed)	
09:00	DEPFET R&D status	Results of the ILC MDI Status	Impede budget and	ILC Overview	Industri Design & Integr	Accel Design & Integr	Why? Opportun...	The perform...	High Power & Coupl	Accel Design & Integr	ATF2 Status	Higgs physics	Gamma-Plan of Deton	High QE and High	Fabricat and Quality	Accel Design & Integr	Joint Lini Perform Session	LCC mgmt (closed)	
10:00	Search for 3D Deep	Readout electronics for Lumi...	Turn-on by turn-on	ILC Overview	Industri Design & Integr	Accel Design & Integr	Identify the impact of beam polarisation in the...	Identify the impact of beam polarisation in the...	High Power & Coupl	Accel Design & Integr	ATF2 Status	Higgs physics	Gamma-Plan of Deton	High QE and High	Fabricat and Quality	Accel Design & Integr	Joint Lini Perform Session	LCC mgmt (closed)	
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11:00	UK activities - status	ICsmim 3, DESY Hamburg	Accelerator Design & Integrati	CLIC BDS Overview	LCC Manager (closed session)		Direct search of Yukawa	Measurement of the top quark	High Power & Coupl	Accel Design & Integr	ATF2 Status	Higgs physics	Gamma-Plan of Deton	High QE and High	Fabricat and Quality	Accel Design & Integr	Joint Lini Perform Session	LCC mgmt (closed)	
11:00	UK activities - status	ICsmim 3, DESY Hamburg	Accelerator Design & Integrati	CLIC BDS Overview	LCC Manager (closed session)		Direct search of Yukawa	Measurement of the top quark	High Power & Coupl	Accel Design & Integr	ATF2 Status	Higgs physics	Gamma-Plan of Deton	High QE and High	Fabricat and Quality	Accel Design & Integr	Joint Lini Perform Session	LCC mgmt (closed)	
12:00	Measurements of the top quark	Physics Report	Top physics at CLIC	XFEL Cavity RF Test	SemRm 1, DESY Hamburg		Measurement of the top quark	Measurement of the top quark	High Power & Coupl	Accel Design & Integr	ATF2 Status	Higgs physics	Gamma-Plan of Deton	High QE and High	Fabricat and Quality	Accel Design & Integr	Joint Lini Perform Session	LCC mgmt (closed)	
12:00	Measurements of the top quark	Physics Report	Top physics at CLIC	XFEL Cavity RF Test	SemRm 1, DESY Hamburg		Measurement of the top quark	Measurement of the top quark	High Power & Coupl	Accel Design & Integr	ATF2 Status	Higgs physics	Gamma-Plan of Deton	High QE and High	Fabricat and Quality	Accel Design & Integr	Joint Lini Perform Session	LCC mgmt (closed)	
13:00	Lunch Break																		
14:00	ILC EC	Simulation of pair backgrou...	Buckets of tops	XFEL Cavity RF Test	SemRm 1, DESY Hamburg		Simulation of pair backgrou...	Simulation of pair backgrou...											
14:00	ILC EC	Simulation of pair backgrou...	Buckets of tops	XFEL Cavity RF Test	SemRm 1, DESY Hamburg		Simulation of pair backgrou...	Simulation of pair backgrou...											
15:00	ILC EC	Simulation of pair backgrou...	Buckets of tops	XFEL Cavity RF Test	SemRm 1, DESY Hamburg		Simulation of pair backgrou...	Simulation of pair backgrou...											
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16:00	ILC EC	Simulation of pair backgrou...	Buckets of tops	XFEL Cavity RF Test	SemRm 1, DESY Hamburg		Simulation of pair backgrou...	Simulation of pair backgrou...											
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18:00	ILC EC	Simulation of pair backgrou...	Buckets of tops	XFEL Cavity RF Test	SemRm 1, DESY Hamburg		Simulation of pair backgrou...	Simulation of pair backgrou...											
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19:00	ILC EC	Simulation of pair backgrou...	Buckets of tops	XFEL Cavity RF Test	SemRm 1, DESY Hamburg		Simulation of pair backgrou...	Simulation of pair backgrou...											
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20:00	ILC EC	Simulation of pair backgrou...	Buckets of tops	XFEL Cavity RF Test	SemRm 1, DESY Hamburg		Simulation of pair backgrou...	Simulation of pair backgrou...											
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22:00	ILC EC	Simulation of pair backgrou...	Buckets of tops	XFEL Cavity RF Test	SemRm 1, DESY Hamburg		Simulation of pair backgrou...	Simulation of pair backgrou...											
22:00	ILC EC	Simulation of pair backgrou...	Buckets of tops	XFEL Cavity RF Test	SemRm 1, DESY Hamburg		Simulation of pair backgrou...	Simulation of pair backgrou...											



Session Helpers (red T-Shirts)

Olufemi Adeyemi
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Andrii Chaus
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Aliakbar Ebrahimi
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Benjamin Herberg
Valentyn Kovalenko
Susan Kuba
Ricarda Laasch

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Sabine Krohn
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Oliver Krüger
Stefan König
Horst Lehmann
Kars Ohrenberg
Wolfgang Parys
Sarah Steenken
Martina Volmari
Arndt Wandrey

and many, many others....

ECFA LC2013

European Linear Collider Workshop

27 – 31 May 2013

DESY, Hamburg

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DFG

ECFA Study Q
Physics and Detectors
for a Linear Collider



HELMHOLTZ
GEMEINSCHAFT



<http://lc2013.desy.de>



Have a nice trip back home!
See you all (and more)
in Tokyo