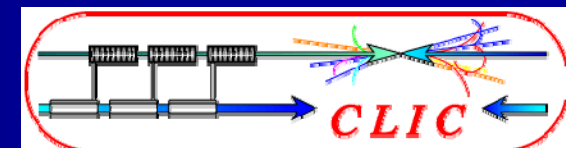




ELAN in 2008



F. Richard LAL/Orsay



Outline

- Introductory remarks
- Preparatory work for **FP7** related to future e+e- colliders: **Eucard** and **ILC-Higrade**
- Political context for e+e- colliders
- Status of ILC
- Status of CLIC
- CLIC-ILC collaboration
- ELAN outreach

Introduction

- ELAN proper activities were very limited in 2008 given that the management of ELAN is deeply implied in various organisations which were developing fast during the ELAN period
- R&D on SCRF technology is embedded within the **ILC**
- R&D on NCRF technology within **CLIC/CTF3**
- Beam dynamics and Instrumentation sharing between ILC and CLIC
- Laser-plasma has migrated to **EUROLEAP**
- Our role therefore has been to favour a strategy towards an e^+e^- collider at the European level through participation to workshops and by the preparation of FP7



CARE

Preparation of FP7



- From **CARE** to **Eucard**
- Complex process bottom up which led to large overbooking followed by a 'thinning' top bottom process very delicate to implement
- Our role has been to help keeping alive the main ELAN components of CARE, including the laser-plasma aspect, and to make sure that things are as transparent as possible (both top bottom through **ESGARD** but also bottom up through a open discussion with the community)
- There was no need to maintain ELAN in the new organisation



Preparation of FP7

- **ILC-Higrade** is one of the ~30 projects belonging to the roadmap defined by ESFRI
- Participants: CERN, DESY, France, Italy, UK
- This ILC project goes beyond most of the others in terms of its scope as a worldwide collaboration
- PP resources will be used to define the various complex aspects of this enterprise from the European perspective but in tight connection with the GDE
- Governance, siting, outreach, lobbying...
- Financial support to improve the yield of cavities passing the 35 MV/m threshold (at present 50% of the XFEL cavities pass this requirement)

International Context for an e⁺e⁻ collider

- Difficult financial situation in the US and the UK. However DOE and NSF intend to maintain their support at the level of 2007 (no step function)
- Japanese (and Asian) interest remains firm (KeK in charge of assembling a full ILC SCRF station)
- After the Nobel prize:

"We want to make arrangements so that Japan can take on leadership," said Chief Cabinet Secretary Takeo Kawamura, the government's spokesman.

- New management of CERN (K. Heide at ECWS06) states its intention to promote a worldwide LC (a meeting with FNAL and KeK managements has been announced)
- Status of ILC preparation allows an early decision ~2012 BUT ultimately LHC (or Tevatron) results will decide
- CLIC-ILC collaboration provides a common front on this strategy



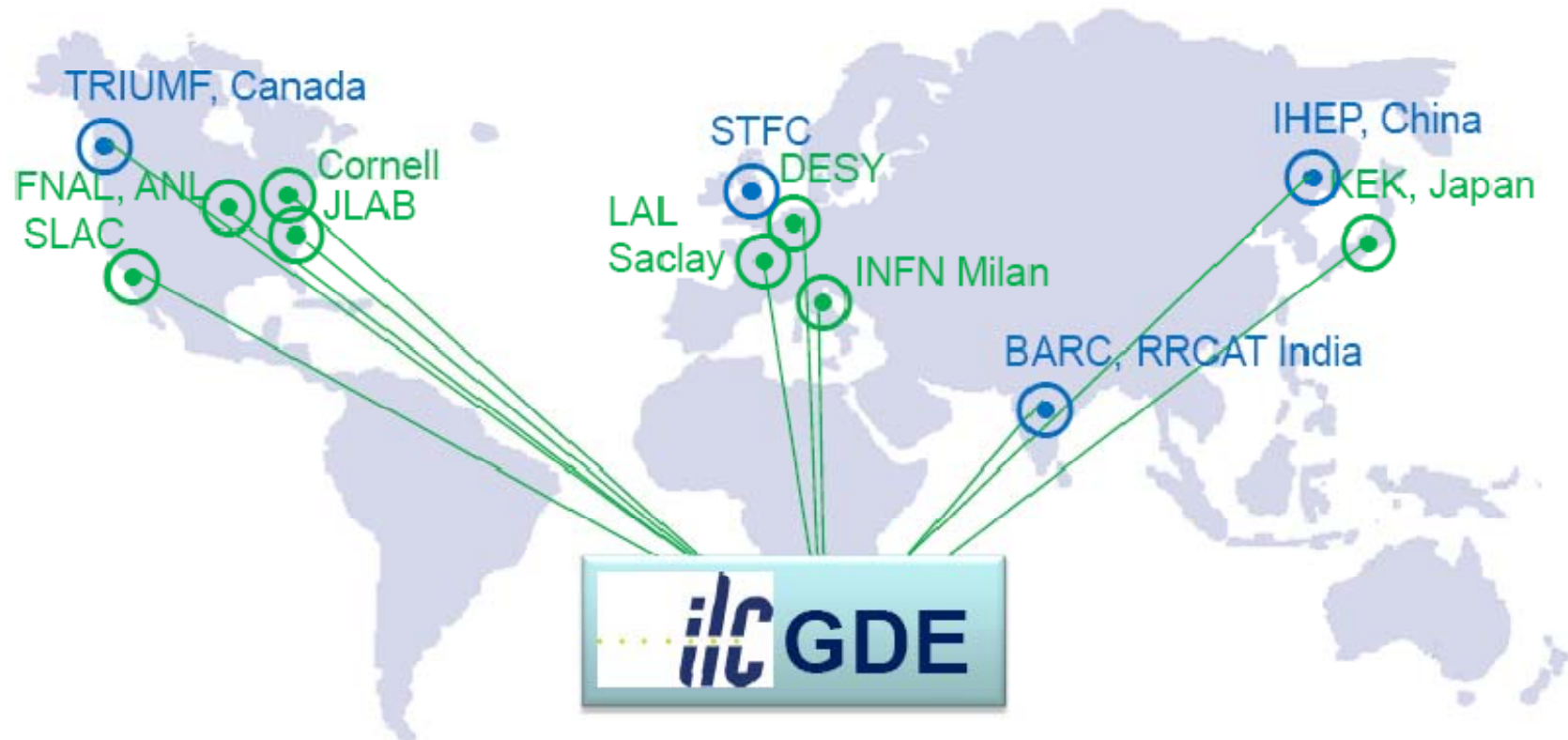
Status of ILC

- Start to discuss siting, governance
- Well advanced in defining detector concepts (NB: >50% of detector resources spent in UE **EUDET**)
- Well advanced project thanks to **XFEL** (industrialisation of ~1000 cavities)
- More realism e.g. through **ATF2** at KeK, **CesrTA** at Cornell and **TTF/FLASH** at DESY
- Results on gradients are encouraging: 50% of the cavities (from one vendor) pass the 35 MV/m test (NB: a 2010 milestone !)
- Good micro-inspection tools to explain failures
- Much work ongoing (55 Institutes, 12 countries)

A worldwide effort on SCRF



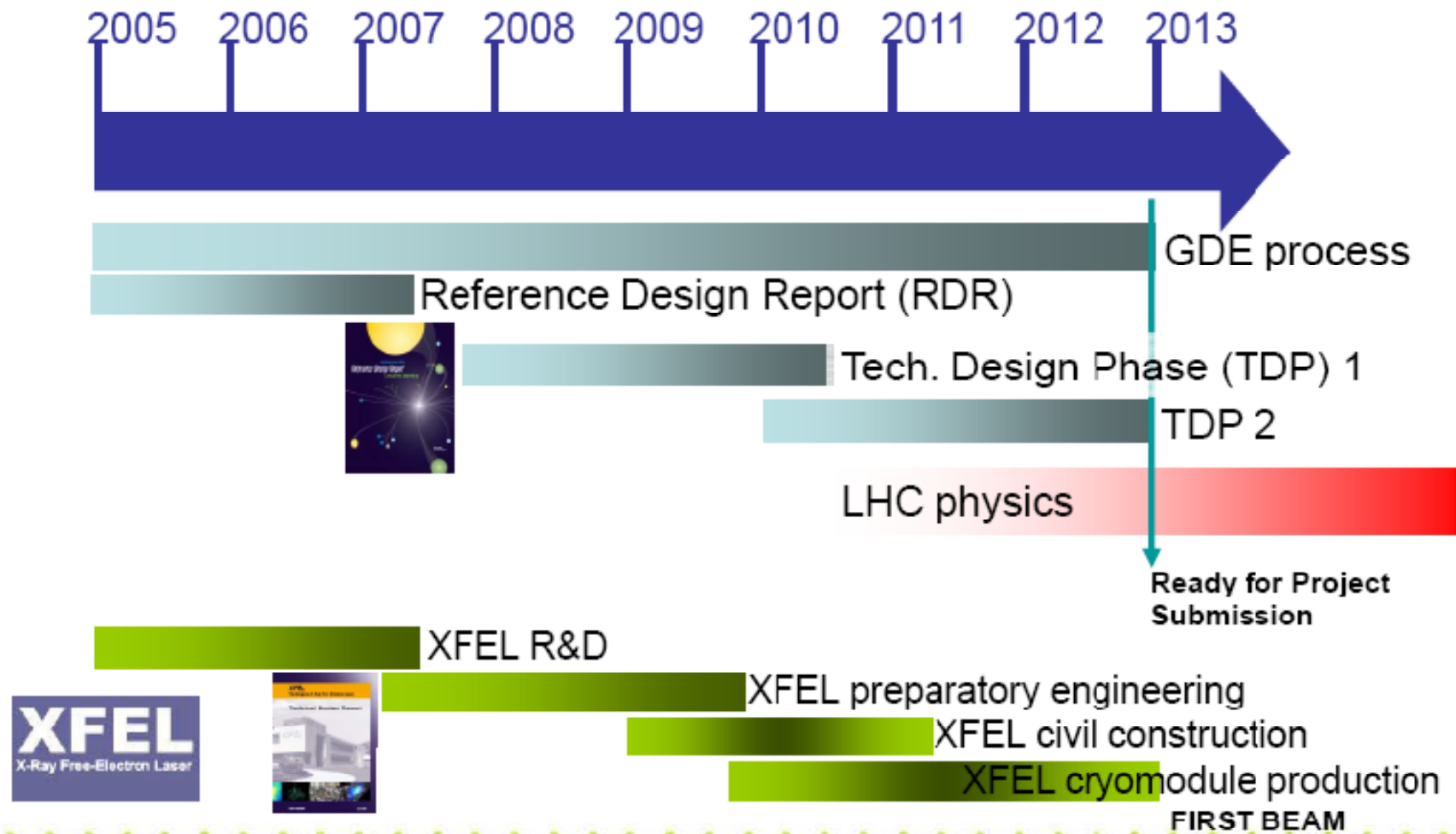
Global SCRF Technology

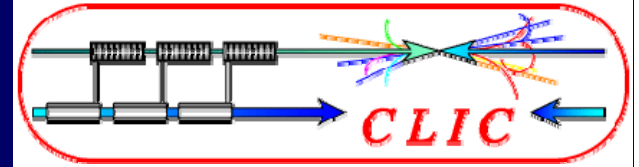


**Technical guidance from TESLA
Technology Collaboration**



GDE & XFEL Timelines

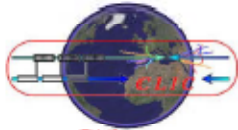




Status of CLIC

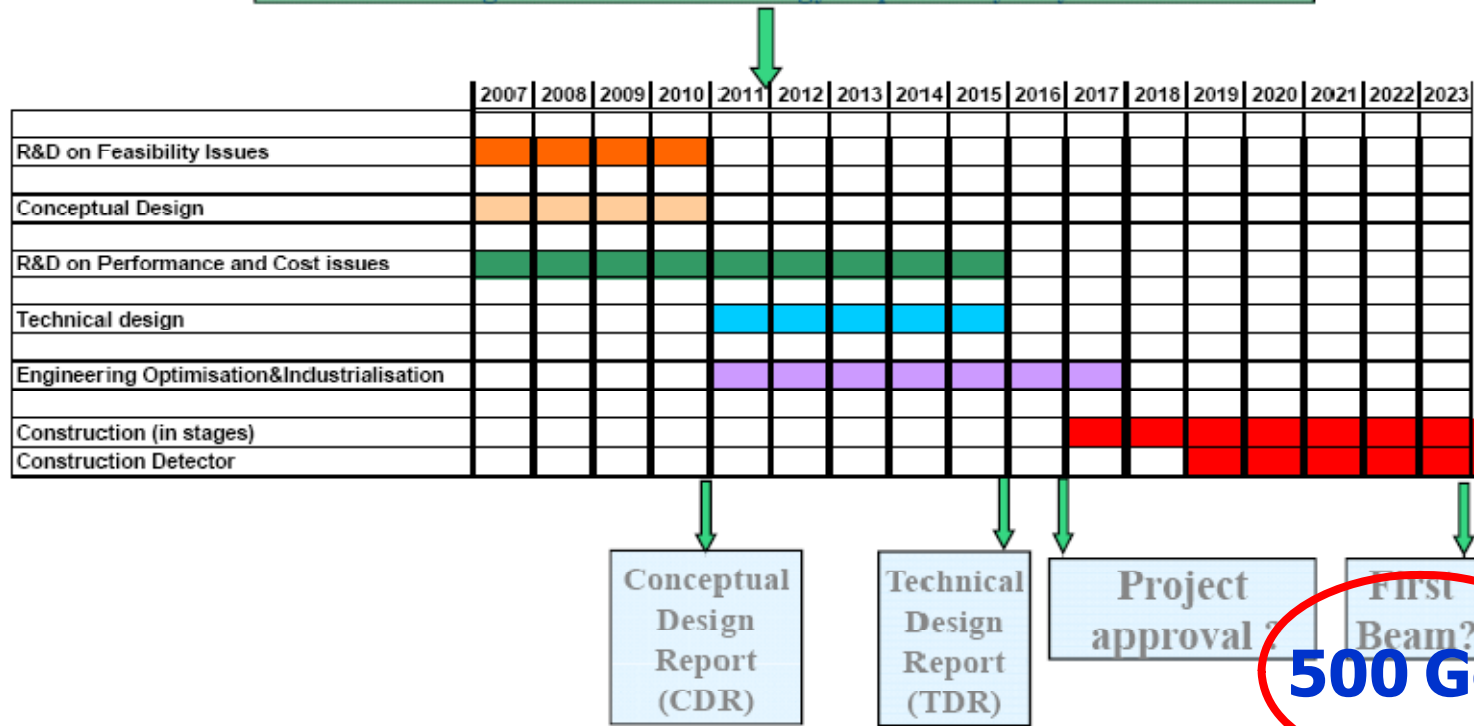
- CLIC is a project aiming at Multi TeV
- It has recently modified drastically its parameters. in particular the frequency which went from to 30 GHz to 12 GHz
- CLIC-ILC collaboration has materialized with the creation of 7 WG which include detectors
- Good cross-participation of ILC to CLIC08 and of CLIC to LCWS/ILC08
- 'Friendly rivalry' as stated by B. Barish in Nature
<http://www.nature.com/nature/journal/v456/n7221/full/456422a.html>
- Assuming a successful R&D with CTF3 the project will propose a first phase at 500 GeV which directly challenges ILC

CLIC roadmap



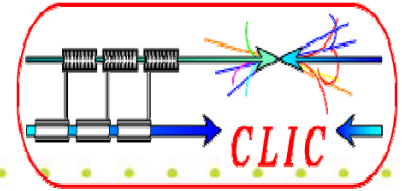
Tentative long-term CLIC scenario Shortest, Success Oriented, Technically Limited Schedule

Technology evaluation and Physics assessment based on LHC results for a possible decision on Linear Collider with staged construction starting with the lowest energy required by Physics





Subjects with strong synergy Working Groups & Conveners



	CLIC	ILC
Physics & Detectors	L.Linssen, D.Schlatter	F.Richard, S.Yamada
Beam Delivery System (BDS) & Machine Detector Interface (MDI)	D.Schulte, R.Tomas Garcia E.Tsesmelis	B.Parker, A.Seriy
Civil Engineering & Conventional Facilities	C.Hauviller, J.Osborne.	J.Osborne, V.Kuchler
Positron Generation (new)	L.Rinolfi	J.Clarke
Damping Rings (new)	Y.Papaphilipou	M.Palmer
Beam Dynamics	D.Schulte	A.Latina, K.Kubo, N.Walker
Cost & Schedule	H.Braun, K.Foraz	J.Carwardine, P.Garbincius, T.Shidara

Dissemination in ELAN

- 9 workshops + 1 Accelerator school were supported by ELAN (~same as in 2007)
- This effort resulted in 11 ELAN Documents
- The ELAN web page contains all relevant infos about the workshops and about the documents
(<http://esgard.lal.in2p3.fr/Project/Activities/Current/Networking/N2/ELAN/>)

ELAN in 2008

2008

<u>CTF3</u> collaboration meeting	21-23 January	CERN
<u>TILC08</u> Joint ACFA Physics and Detector Workshop and GDE meeting on International Linear Collider	3-6 March	Sendai, Japan
<u>GDE Meeting</u>	3-7 June	Dubna, Russia
<u>ECFA2008</u> International Linear Collider Workshop	9-12 June	Warsaw, Poland
<u>Posipol 2008</u>	16-18 June	Hiroshima, Japan
<u>CLIC 08</u> Workshop	14-17 October	CERN
<u>2008 LC School</u> Third International Accelerator School for Linear Colliders	19-29 October	Oak Brook, Illinois, USA
<u>Channeling 2008</u>	25 October - 1 November	Erice, Italy
<u>LCWS08 and ILC08</u> International Linear Colliders Workshop 2008	16-20 November	University of Illinois at Chicago, USA
<u>CARE08</u>		

CARE/ELAN Documents

- **CARE/ELAN document-2008-001**
 - CLIC-Lecture given at the 2nd International School for Linear Colliders
 - F. Tecker, CERN
- **CARE/ELAN document-2008-002**
 - Exploring ultra-low values β^* in ATF2- R&D Programme proposal
 - D. Angal-Kalimin, Cockcroft Institute, S. Bai, LAL and IHEP, P. Bambade, LAL, H. Braun, CERN, J.P. Delahaye, CERN, J. Gao, IHEP, Y. Honda, KEK, J. Jones, Cockcroft Institute, S. Kuroda, KEK, T. Okugi, KEK, Y. Renier, LAL, A. Scarfe, Cockcroft Institute, D. Schulte, CERN, A. Seryi, SLAC, T. Tauchi, KEK, R. Tomas, CERN, J. Urakawa, KEK, D. Wang, IHEP, M. White LAL and SLAC, M. Woodley, SLAC, X.W. Zhu, IHEP, F. Zimmermann, CERN
- **CARE/ELAN document-2008-003**
 - Optical configurations with variable β^* at different IP locations in ATF2
 - S. Bai, LAL and IHEP, P. Bambade, LAL
- **CARE/ELAN document-2008-004**
 - ILC in 2008
 - F. Richard, LAL
- **CARE/ELAN document-2008-005**
 - Tuning of a 2D ground motion generator for ATF2
 - Y. Renier and P. Bambade, LAL, A. Seryi, SLAC

CARE/ELAN Documents

- **CARE/ELAN document-2008-006**
 - RF Timing Jitter in CLIC
 - D. Schulte, CERN
- **CARE/ELAN document-2008-007**
 - Main Linac Beam Dynamics and Specifications
 - D. Schulte, CERN
- **CARE/ELAN document-2008-008**
 - ILC RTML Performance
 - Andrea Latina, FNAL
- **CARE/ELAN document-2008-009**
 - CLIC-ILC Connections for Detectors
 - F. Richard, LAL
- **CARE/ELAN document-2008-010**
 - A precision determination of Higgs mass using the fully simulated Higgs-strahlung process $e+e- \rightarrow hZ \rightarrow h\mu\mu$ at ILC
 - M. Ruan, Y. Gao, F. Richard and Z. Zhang, LAL, Y.Gao Tsinghua University
- **CARE/ELAN document-2008-011**
 - CLIC - Lectures given at the 3rd International School for Linear Colliders
 - F. Tecker, CERN

Conclusions

- A lot has happened on the LC project since ELAN started
- Europe is in very good shape in this worldwide project and UE contracts have helped a great deal
- ELAN has helped in connecting the various actors in particular CLIC and ILC
- ELAN has participated in the preparation of FP7
- ELAN financial resources (½ budget as initially planned) have been efficiently used to promote European participation to workshops
- Good luck to **Eucard** and **ILC-Higrade**