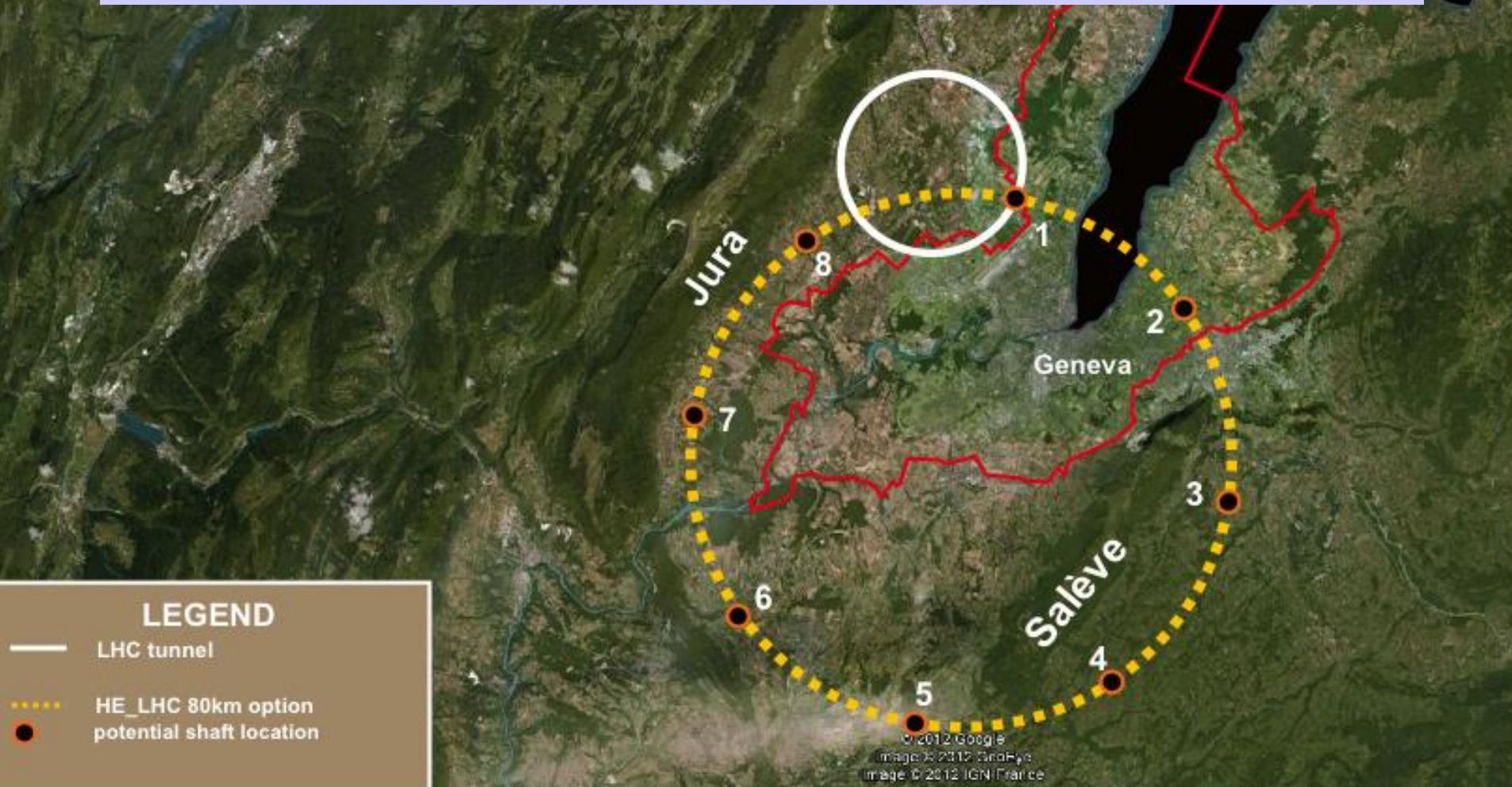
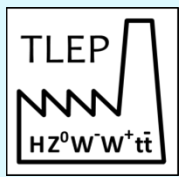


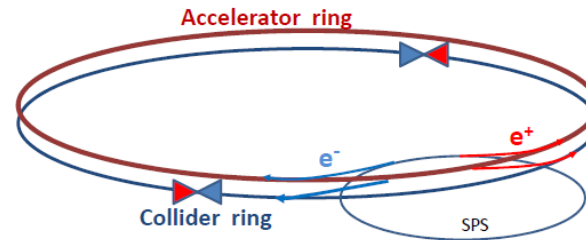
TLEP#6

Concluding remarks & the next steps





December 2011:



2 authors

September 2013:



128 authors

Fig. 2: A possible implementation of the 80 km tunnel (dashed circle) that would host TLEP and the VHE-LHC in the Geneva area, taken from Ref. [9]. The 100 km version (full line) is currently under study.

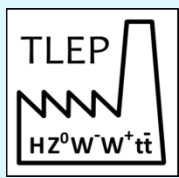
Next steps?

Alain Blondel TLEP #6 next steps 2013-10-18

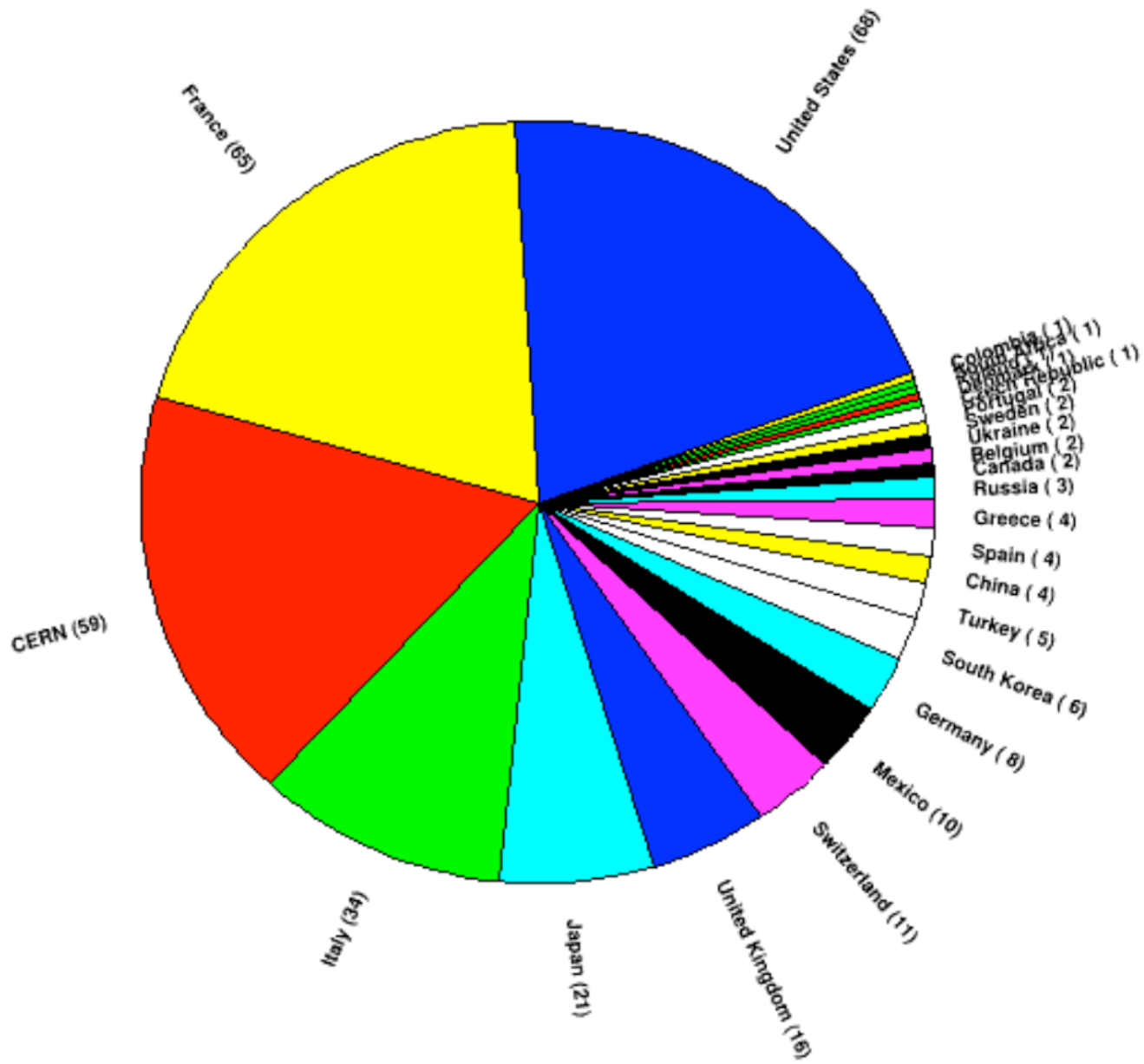




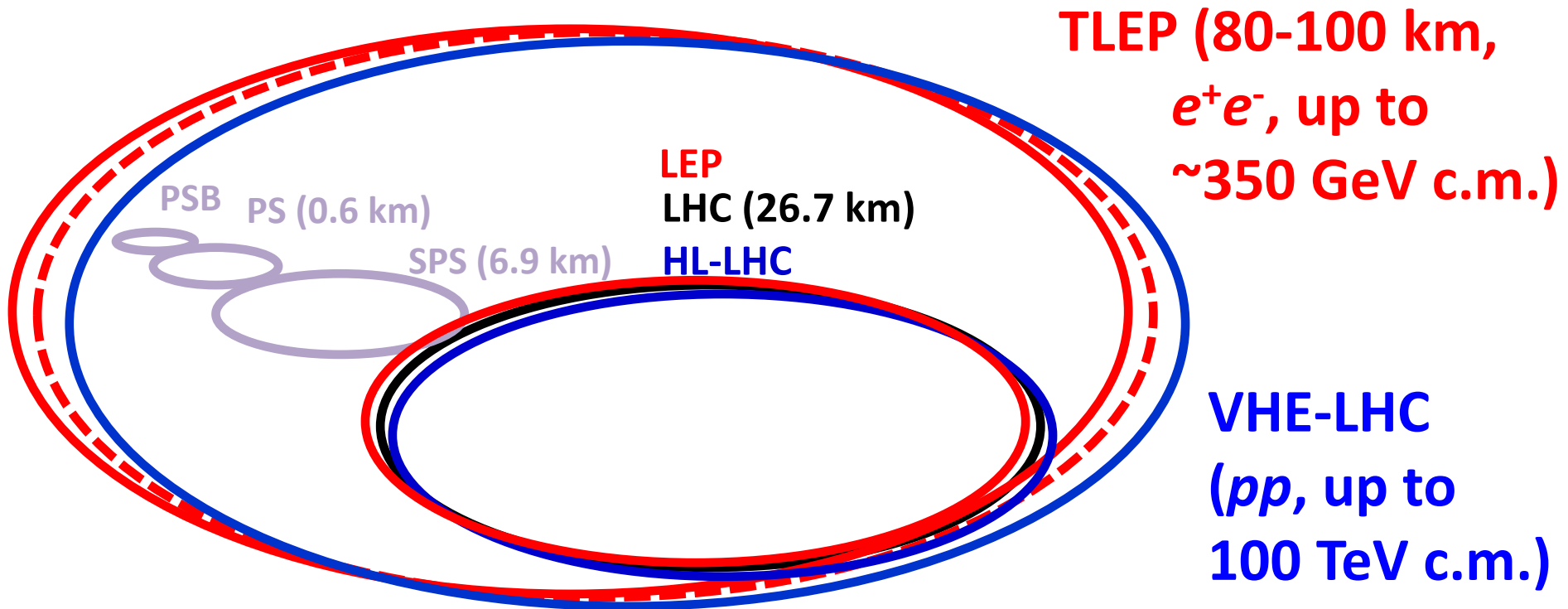
As usual the story has started with a small number of committed individuals (TLEP-SG)



337 registered participants to the TLEP design study



possible long-term strategy



& e^\pm (120 GeV)– p (7, 16 & 50 TeV) collisions ([(V)HE-]TLHeC)

≥ 50 years of e^+e^- , pp , ep/A physics at highest energies

Mark Palmer's Personal (and Dispassionate) Comments (5 sept 2013)

- The TLEP concept was generally viewed as very interesting, but still in the preliminary stages
 - Considerable interest among HEP physicists, based on the potential cost and performance points
 - The coupling to an Energy Frontier pp machine lends this option considerable weight
 - There is a strong desire to let the Japanese Initiative proceed and
- Japan science council 30 september: Not yet! Many questions, it will take several years**
 - Moving towards a large tunnel should not be allowed to interfere with taking full advantage of the LHC
 - **A full CDR is required**
- Thus more detailed consideration after seeing how events of the next few years unfold, and while a full CDR is developed, seems reasonable...

FCC Study Scope and Structure

Future Circular Colliders - Conceptual Design Study for next European Strategy Update (2018)



Michael Benedikt

Infrastructure

tunnels, surface buildings, transport (access roads), civil engineering, cooling ventilation, electricity, cryogenics, communication & IT, fabrication and installation processes, maintenance, environmental impact and monitoring,

Hadron injectors

Beam optics and dynamics
Functional specs
Performance specs
Critical technical systems
Operation concept

Hadron collider

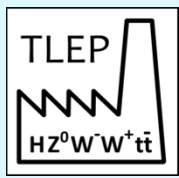
Optics and beam dynamics
Functional specifications
Performance specs
Critical technical systems
Related R+D programs
HE-LHC comparison
Operation concept
Detector concept
Physics requirements

e+ e- collider

Optics and beam dynamics
Functional specifications
Performance specs
Critical technical systems
Related R+D programs
Injector (Booster)
Operation concept
Detector concept
Physics requirements

e- p option: Physics, Integration, additional requirements

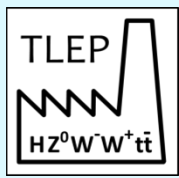
The two pillars: pp and e+e- mandate is to deliver full CDR for both machines with an extended cost review



The combination of TLEP and the VHE-LHC offers, for a great cost effectiveness, the best precision and the best search reach of all options presently on the market.

*First look at The Physics Case of TLEP
arXiv:1308.6176v2 [hep-ex] 22 Sep 2013*





Tasks in front of us

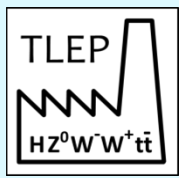
Make best use of all our assets:

0. Keep TLEP momentum going
- 0'. Integrate in the FCC study and push together with the 100 TeV pp folks to make it all happen (we all need that tunnel!)
- 0''. Interact scientifically with the e+e- community worldwide
 - TLEP is an attractive project with new challenges and opportunities
 - many stones have already been turned
 - but statistics/precision can open many new doors !
- 0'''. Be patient and proceed in the right order.

Il ne faut pas brûler les étapes (Ph. Bloch)

(Dont jump the gun)





Tasks in front of us

1. make sure we make best use of the few years to come to acquire 'serious consideration'

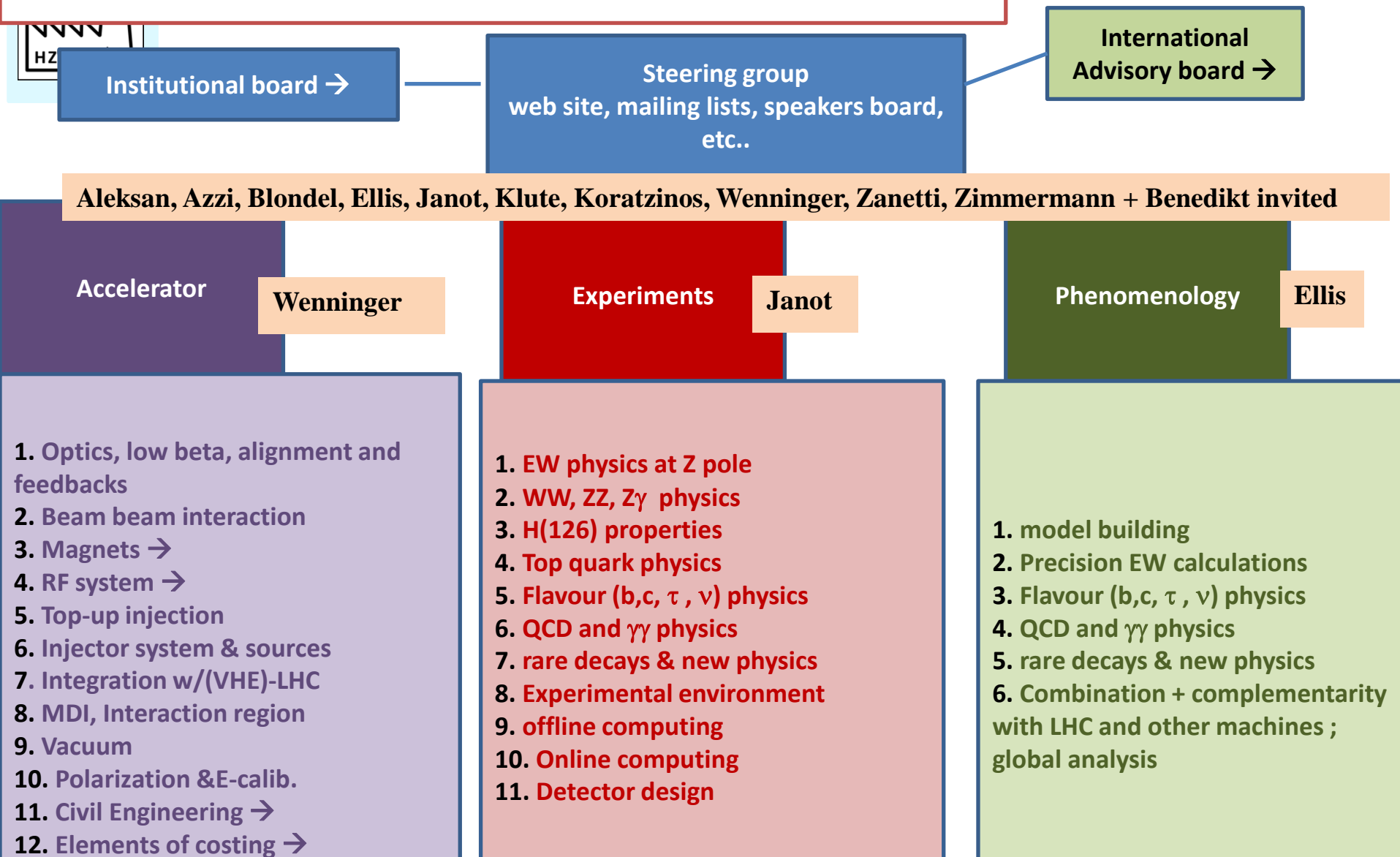
- firm up concepts and search for flaws or show-stoppers (no complacency!)
- identify critical points where technical R&D or prototyping is required and draw most efficient way of carrying it out successfully
 - for accelerator and possibly detectors
- engage international partners in global collaboration
- have fun with the bonanza of new ideas to be had
 - and be firm in selecting the realistic ones!
- aim at interim design study report in 2015

2. to this effect

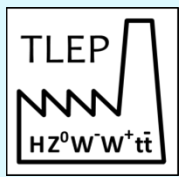
- divide work in comprehensive work packages
- for each appoint (one) convener(s) whose task is to look for partners and assemble team (*get going but leave space for newcomers*)
- begin regular VIDYO meetings
- lay the basis of a global collaboration structure in the framework of FCC



TLEP design study structure -- ad interim



There will be a single Advisory board and Institutional board for the FCC study
The technical work-packages will be integrated (RF, magnets, infrastructure, costs)



Identification main topics: e.g. Lepton physics and experiments

LCE	Lepton Collider Physics and Experiments	Definition of requirements and conceptual design of a generic e+e- e
LCE.1	Phenomenology	Study consequences of models on potential experiments and what se
LCE.1.1	Model building and new physics	Explore the new physics scenarios and their effect on observables
LCE.1.2	Precision EW calculations	Establish feasibility of theoretical calculations at level appropriate fo
LCE.1.3	Flavour (b,c, τ , ν) physics and rare decays	Explore the opportunities offered by high statistics of Z, W, H, t, b, c
LCE.1.4	QCD and $\gamma\gamma$ physics	Develop a physics case for jet studies, measurements of the strong c
LCE.1.5	Combination + complementarity	Identify added value of TLEP in global fits to SM and searches for nev
LCE.2	Experiments	Define the experimental searches that should be conducted
LCE.2.1	EW physics at Z pole	achievable precisions. requirements on statistics, energy calibration,
LCE.2.2	WW, ZZ, Z γ physics	optimal running energies, requirement on accelerator parameters and
LCE.2.3	H(126) properties	achievable precisions and detector requirements
LCE.2.4	Top quark physics	optimal running energies, requirement on detector performance
LCE.2.5	Flavour (b,c, τ , ν) physics and rare decays	achievable precisions and detector requirements
LCE.2.6	QCD and $\gamma\gamma$ physics	physics case, strong coupling constant, background simulators
LCE.2.7	Experimental signatures of new physics	brainstorming, simulations and requirement on detectors
LCE.2.8	Experimental environment	counting rates, electromagnetic backgrounds and radiation, low angl
LCE.2.9	Off-line software and computing	software framework for studies, requirements for offline computing
LCE.2.10	On-line software and computing	trigger rates, online reconstruction and analysis, data quality control
LCE.2.11	Detector designs	propose solutions to requirements from physics groups. Analyse requ

Integration of TLEP DS in the framework of the FCC study.

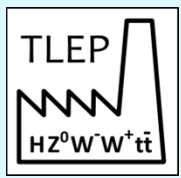


Team for kick-off and study preparation

Future Circular Colliders - Conceptual Design Study Study coordination, host state relations, global cost estimate Benedikt, Zimmermann					
Hadron injectors B. Goddard	VL Hadron collider D. Schulte	Infrastructure, cost estimates P. Lebrun	e+ e- collider J. Wenninger	High Field Magnets L. Bottura	Physics and experiments Hadron physic Experiments, infrastructure A. Ball, F. Gianotti, M. Mangano
				Superconducting RF E. Jensen	
				Cryogenics L. Tavian	
e- p option Integration aspects O. Brüning			Specific Technologies (MP, Coll, Vac, BI, BT, PO) JM. Jimenez	e+ e- exper., physics A. Blondel J.Ellis, P.Janot	
Operation aspects, energy efficiency, OP & mainten., safety, environment. P. Collier				e- p physics + M. Klein	
Planning (Implementation roadmap, financial planning, reporting) F. Sonnemann					

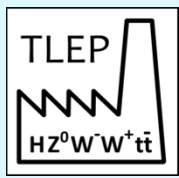
FCC Kick-off meeting preparation

- **Meeting in Geneva area (Haute Savoie)**
- **Target audience.**
 - (Co-) Conveners
 - International Advisory Committee members
 - CERN involved
 -
- **4 half-day session (Wed afternoon – Fri lunchtime)**
 - Introduction, strategy (DG), study overview, general physics
 - Hadron collider, physics, experiments, machine, technology
 - Lepton collider, physics, experiments, machine, technology, e-p option
 - Infrastructure, conclusions, outlook (DG)
- **Proposal for additional meetings:**
 - International Advisory Committee meeting Fri afternoon
 - Informal convener meetings Fri afternoon, Sat morning.
- **Web proceedings of presentations, summary report**
- **Public summary presentation at CERN in the weeks following.**



Back to TLEP...





General TLEP VIDYO meetings

Time-slot:

Monday 15:00-17:00 CERN time; (6-8) am on Pacific time; 23:00-1:00 in Japan

Every two weeks, VIDYO, material on TLEP indico

Standing items: TLEP news, short reports from conveners, agenda for next time + a few feature items for information, discussion

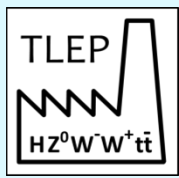
Emphasis in alternance Accelerator / Physics

There will be a single room at CERN

**First meeting 11 November with accelerator emphasis
for that date: aim at a first set of WP conveners so that work can begin in earnest**

**Comments suggestions and requests to the steering committee
tlep-steering-group@cern.ch**



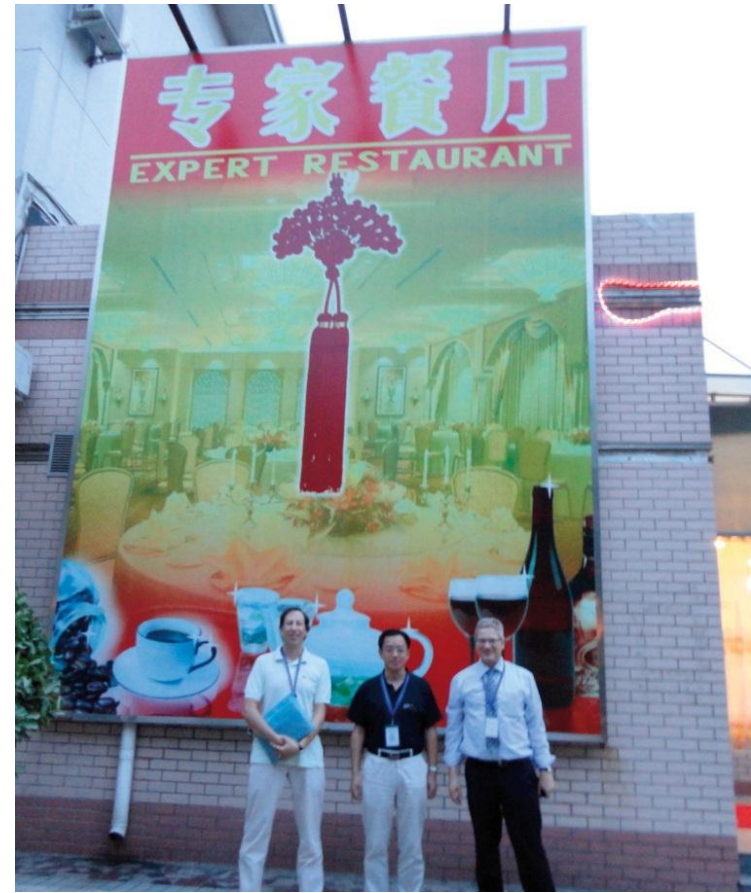
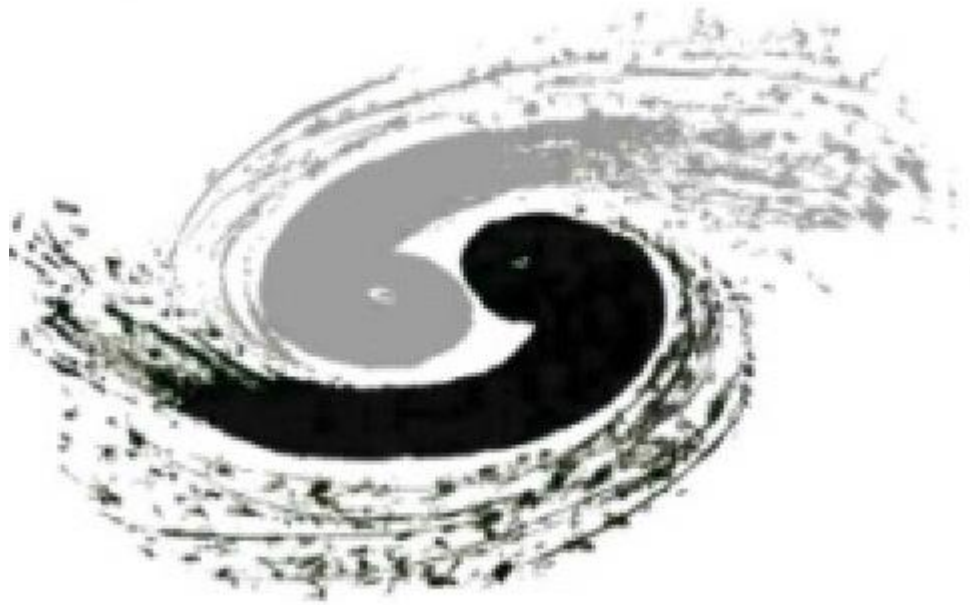
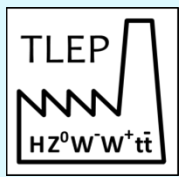


Project baselining

**We will need new parameter list for accelerator
and consistent running scenarios for physics studies
with version number and explanatory notes**

Aim at doing this by **mid January 2014 in view of FCC Kick-off meeting**

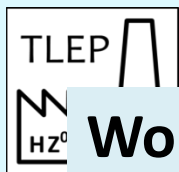




中国科学院高能物理研究所
Institute of High Energy Physics

Alain Blondel TLEP #6 next steps 2013-10-18





Workshop on Future High Energy Circular Colliders

December 16-17, 2013 Beijing, China

at the Institute of High Energy Physics



The Program

The workshop will bring together people interested in high energy circular e+e- colliders as a Higgs factory as well as future high energy circular pp colliders beyond the LHC energy frontier, and will discuss critical issues for accelerator development and detector design, theoretical aspects of Higgs precision measurements, and the physics potential of pp colliders at 50-100 TeV.

Registration

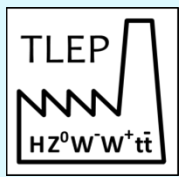
Please register at <http://indico.ihep.ac.cn/conferenceDisplay.py?confId=3813>.

The registration is open until November 30, 2013. The registration fee is 900 RMB, covering meeting materials, lunches, a banquet, and coffee breaks. The registration fee must be paid in Chinese RMB at the registration desk on-site. Please note that the credit card payment cannot be accepted.

Visa

If you need a Chinese visa to attend this workshop, you can follow the instruction provided at the registration page to request a Visa Notification Letter to be used for the visa application at the embassy or a consulate of China.





Calendar (to my knowledge)

2013 Oct 23 Frascati Higgs Workshop

2013 Oct 28 UK IOP meeting on TLEP (UCL)

2013 Nov 11 TLEP general VIDYO Meeting accelerator

2013 Nov 25 TLEP general VIDYO Meeting Physics

2013 Dec 9 TLEP general VIDYO Meeting Accelerator

2013 Dec 16-17 FHECC meeting in Beijing

2013 Dec 23 no meeting.

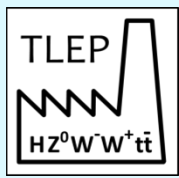
2014 Jan 6, 20 , 3 Feb etc... TLEP VIDYO (TBC)

2014 Feb 12-14 FCC Kick-off meeting

Next TLEP workshops TBD (Candidates to host?)

Alain Blondel TLEP #6 next steps 2013-10-18





Concluding remarks

TLEP is taking a new dimension towards reality

TLEP #6 workshop has been extremely interesting

83 registrants, incl. from China, Mexico, Russia, USA etc...

much progress on several fronts

**-- accelerator design : optics, beam-beam etc..
revealed TLEP-Z challenges**

-- theory and experiment: challenges of precision!

and much work to do!

**Many thanks to speakers, chairs,
and organizer !**



Alain Blondel TLEP #6 next steps 2015-10-10

