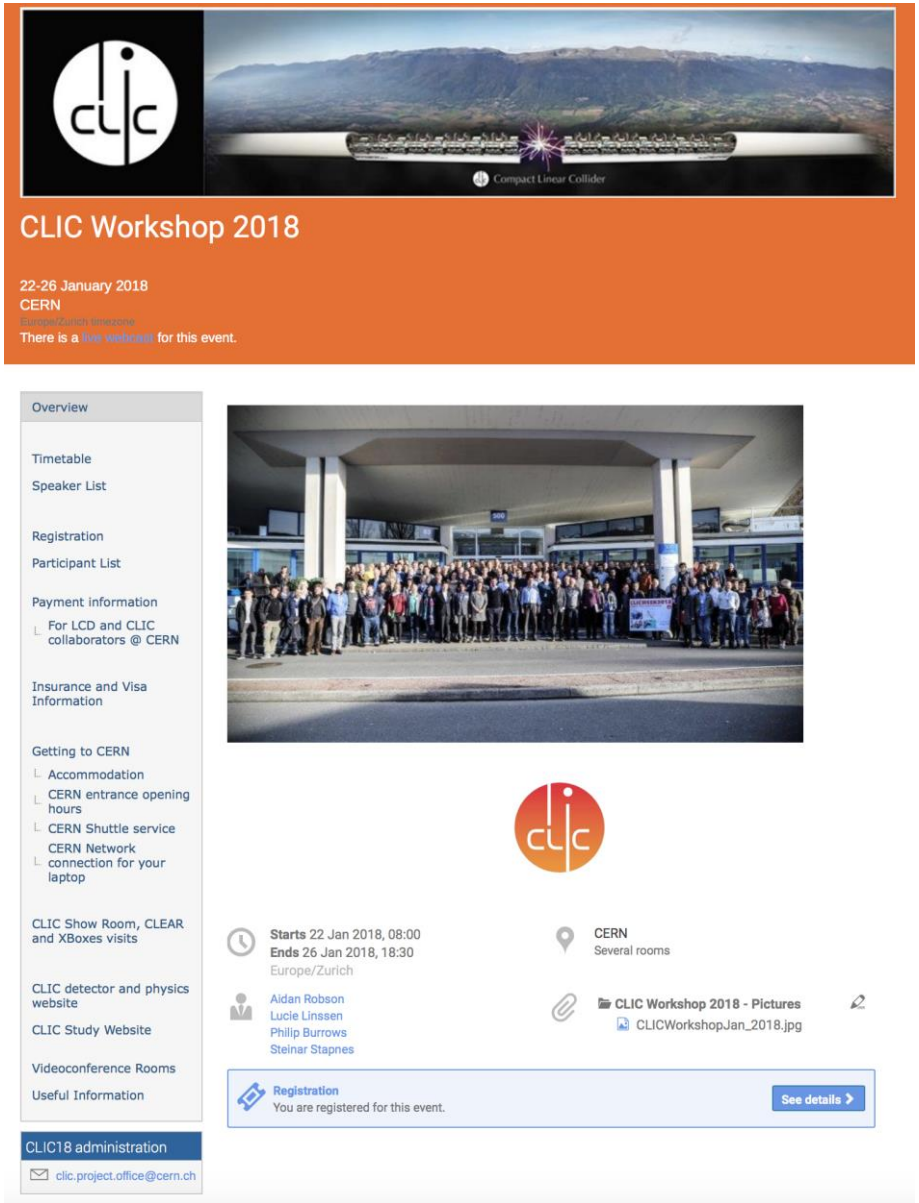
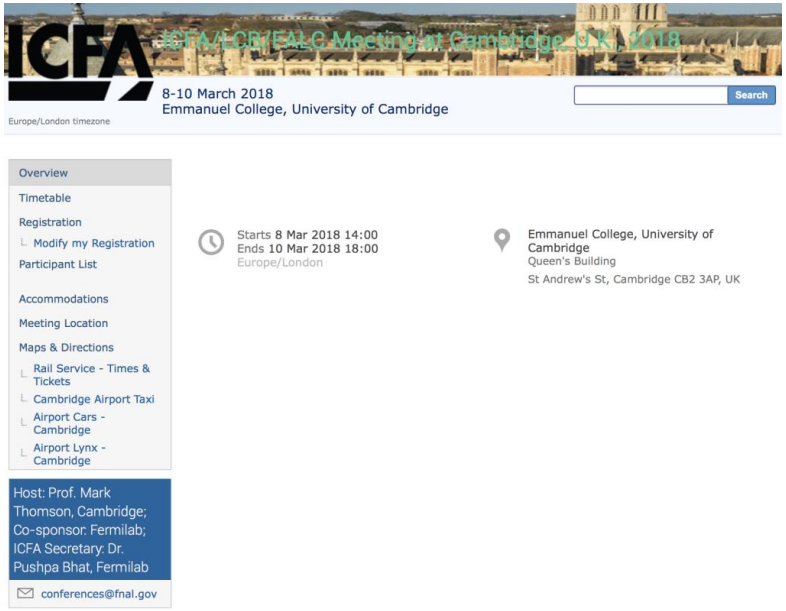
CLIC workshop 2018
and
LCB/ICFA meeting Cambridge

Steinar Stapnes – CERN





Focus

For CLIC workshop

- Status of project (both acc. and phys&det)
- Plans for next phase (2020-25)
- Related projects (X-band) – as FELs, smaller machines

For LCB/ICFA/FALC:

- Development for ILC in Japan
- European Strategy
- … + normal ICFA matters …

2013 - 2019 Development Phase

Development of a Project Plan for a staged CLIC implementation in line with LHC results; technical developments with industry, performance studies for accelerator parts and systems, detector technology demonstrators

2020 - 2025 Preparation Phase

Finalisation of implementation parameters, preparation for industrial procurement, Drive Beam Facility and other system verifications, Technical Proposal of the experiment, site authorisation

2026 - 2034 Construction Phase

Construction of the first CLIC accelerator stage compatible with implementation of further stages; construction of the experiment; hardware commissioning

2019 - 2020 Decisions

Update of the European Strategy for Particle Physics; decision towards a next CERN project at the energy frontier (e.g. CLIC, FCC)

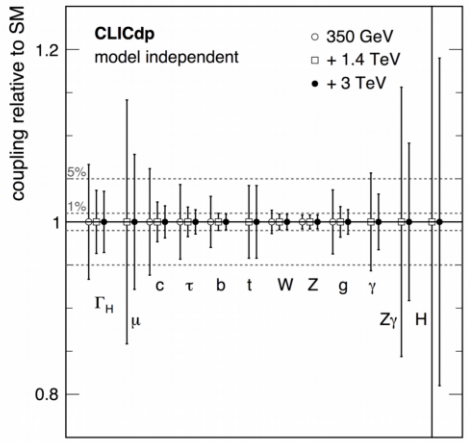
2025 Construction Start

Ready for construction; start of excavations

2035 First Beams

Getting ready for data taking by the time the LHC programme reaches completion

Higgs properties at CLIC



Fully model-independent analysis only possible at lepton colliders

NB: All projections are based on benchmark studies using full detector simulations

Eur. Phys. J. C 77, 475 (2017)

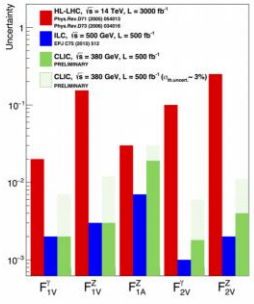
Top electroweak couplings

- Top quark pairs are produced via Z/γ* in electron-positron collisions
- The general form of the coupling can be described as:

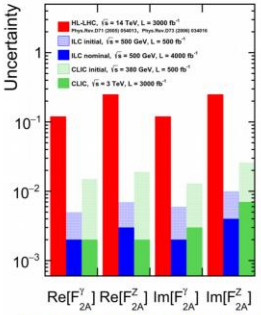
arXiv:hep-ph/0601112

CP conserving CPV

$$\Gamma_\mu^{ttV}(k^2,\, q,\, \bar{q}) = -ie\left\{\gamma_\mu \left(F_{1V}^V(k^2) + \gamma_5 F_{1A}^V(k^2)\right) + \frac{\sigma_{\mu\nu}}{2m_t}\,(q+\bar{q})^\nu \left(F_{2V}^V(k^2) + \gamma_5 F_{2A}^V(k^2)\right)\right\}$$



- New physics would modify the ttV vertex
- CLIC typically 1-2 orders of magnitude better than HL-LHC

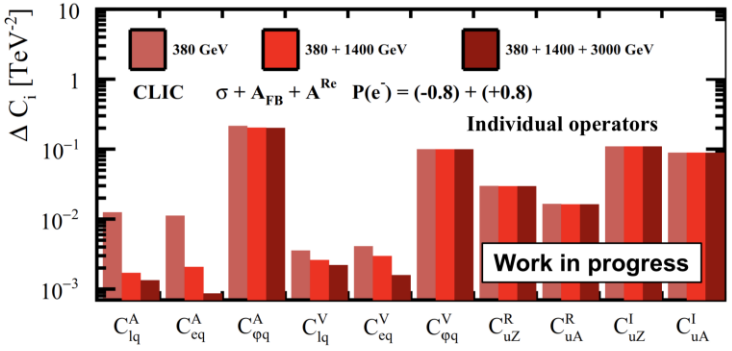


CERN-2016-004

Eur. Phys. J. C 78, 155 (2018)

EFT interpretation

Based on full simulation studies of semi-leptonic $t\bar{t}$ events at all three energies

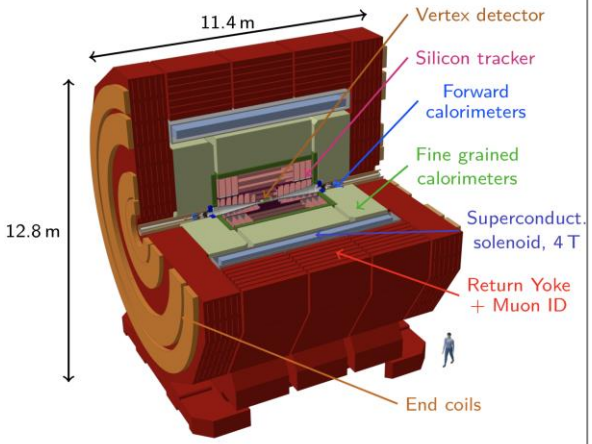


NB: further improvement expected by adding additional observables

CLIC detector: CLICdet

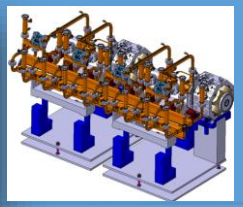
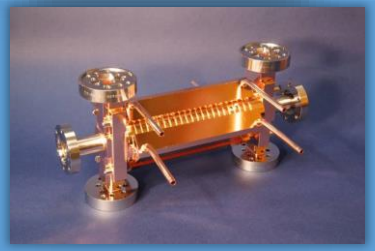
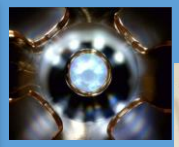
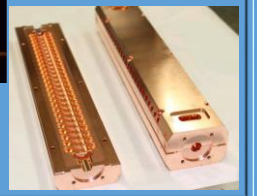
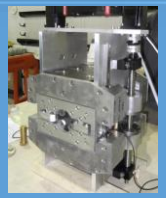
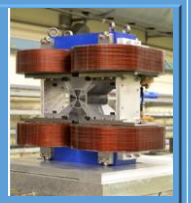
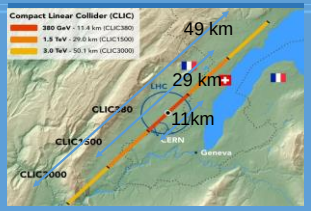
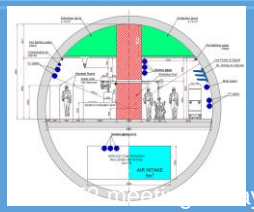
Inspired by ILC detector concepts SiD and ILD and optimised for CLIC environment

- Large silicon tracker R=1.5 m
- ECAL with 40 layers (22 X_0)
- HCAL with 60 layers (7.5 λ_I)
- B-field of 4 T
- Last focussing magnet QD0 outside detector: increased HCAL forward acceptance

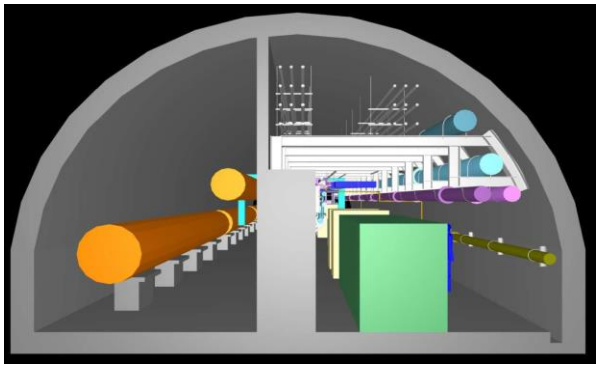


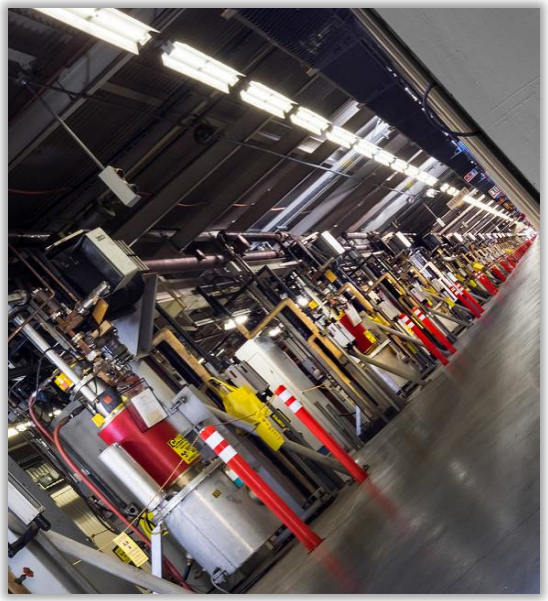
Physics and Detectors in detail; More about EFT approach to BSM (A.Wulzer)

Key technical activities

Now: Module (drive-beam, klystron type) baseline	  	Next: Final modules, from revised designs to industrial modules
Optimized structures and RF components	  	Finalize industrial structures: increase manufacturability, brazed, halves, conditioning. Use/maintain/operate existing test-stands for testing
High efficiency klystrons and modulators	  	Efficiency and costs improvements, significant gains possible for efficiency, industrial cost-models and optimization
Magnets design and prototypes	   	Permanent magnets, longit. variable magnets -> industrial production and cost-optimisation
Civil engineering, infrastructure	  	Detailed site layout and CE/infrastructure designs

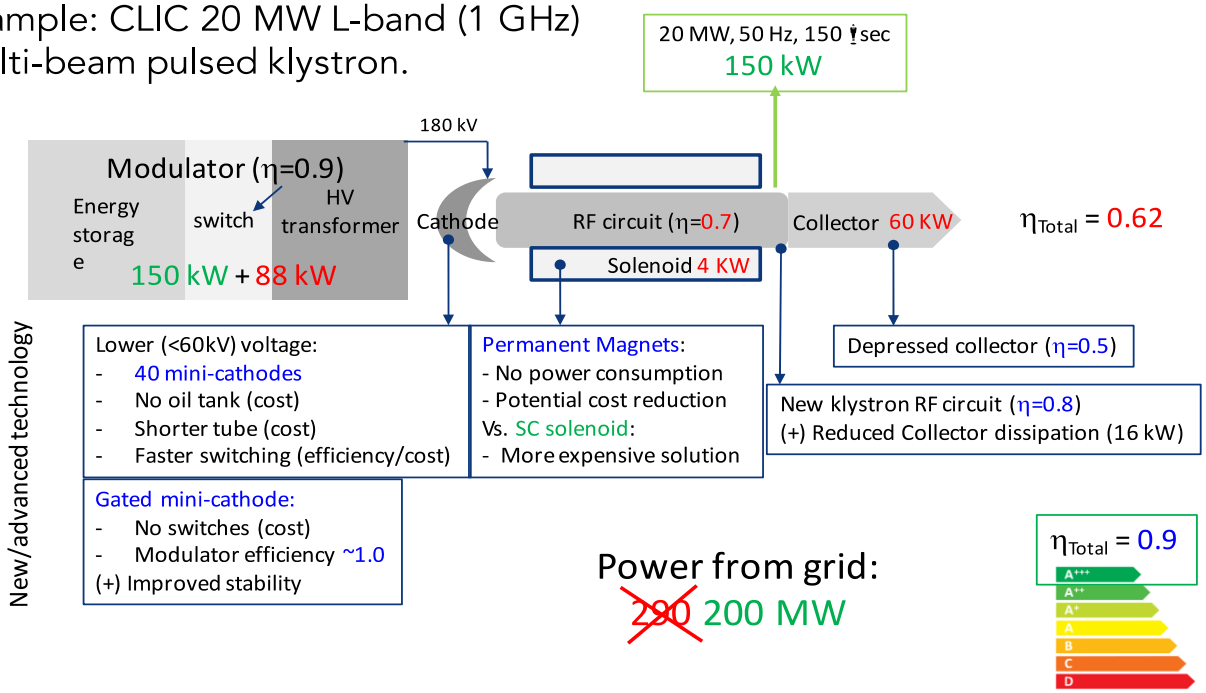
RF power





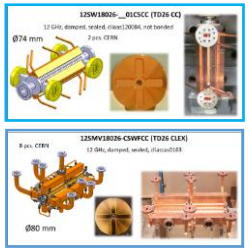
CLIC drivebeam: move klystrons/modulator to surface, energy scaleable by increasing pulse-lengths:

Example: CLIC 20 MW L-band (1 GHz) Multi-beam pulsed klystron.

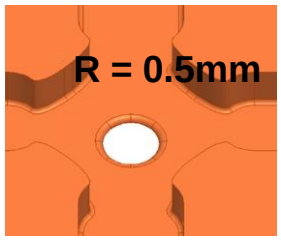


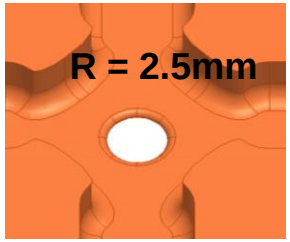
Acc. Structures TD24&26 – new baseline optimised and alternatives for manufacturing and cost

Baseline: Machines disks, damping structures, bonding steps



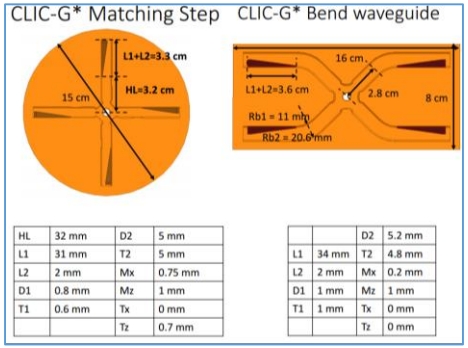
3 TeV structure CLIC G* (optimised)





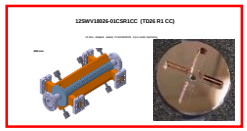
SwissFEL Assembly (brazing)

Rectangular (manufacturing)

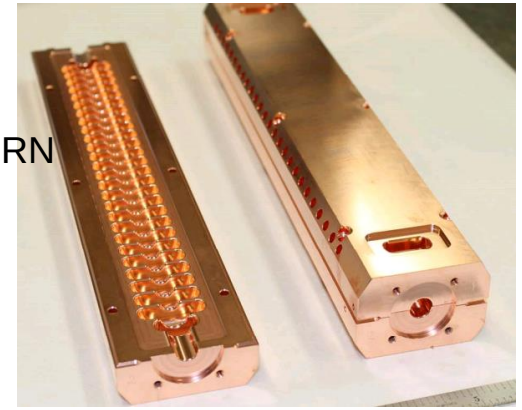


HL	32 mm	D2	5 mm
L1	31 mm	T2	5 mm
L2	2 mm	Mx	0.75 mm
D1	0.8 mm	Mz	1 mm
T1	0.6 mm	Tx	0 mm
		Tz	0.7 mm

		D2	5.2 mm
L1	34 mm	T2	4.8 mm
L2	2 mm	Mx	0.2 mm
D1	1 mm	Mz	1 mm
T1	1 mm	Tx	0 mm
		Tz	0 mm

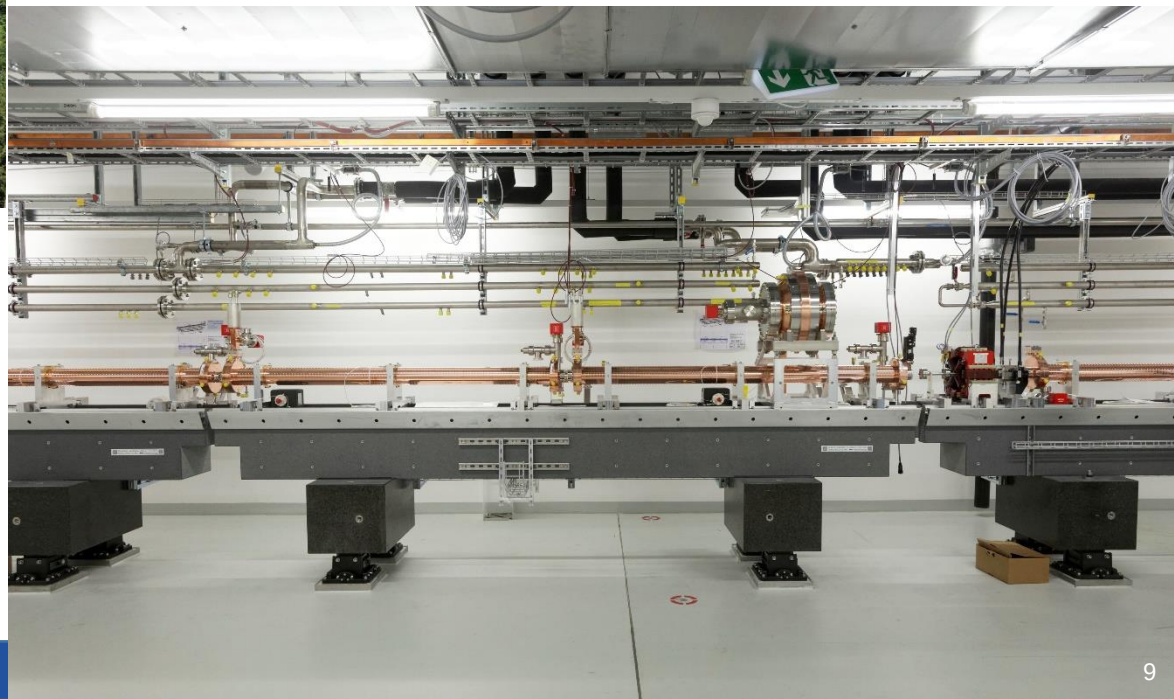


Halves: SLAC/CERN



SwissFEL

- 104 x 2m-long C-band structures
  (beam → 6 GeV @ 100 Hz)
- Similar um-level tolerances
- Length ~ 800 CLIC structures



Industrial considerations

(example – general overview (N.Catalan))

Bodycote (FR)
Reuter (DE)
TMD (UK)

SWISSto12 (CH)
3T RPD (UK)
Concept Laser (DE)
INITIAL (FR)
Protoshop (DE)

VDL (NL)
LT-Ultra (DE)
Yvon Boyer (FR)
DMP (ES)
Morikawa (JP)
KERN (DE)

Thermocompact (FR)
BACMI (FR)
Multivalent (NL)

CINEL (IT)
VDL (NL)
BACMI (FR)
CECOM(IT)
Reuter (DE)
Nihon (JP)
COMEB (IT)
Viztrotech (KR)

Thales (FR)
CPI(US)
Toshiba (JP)

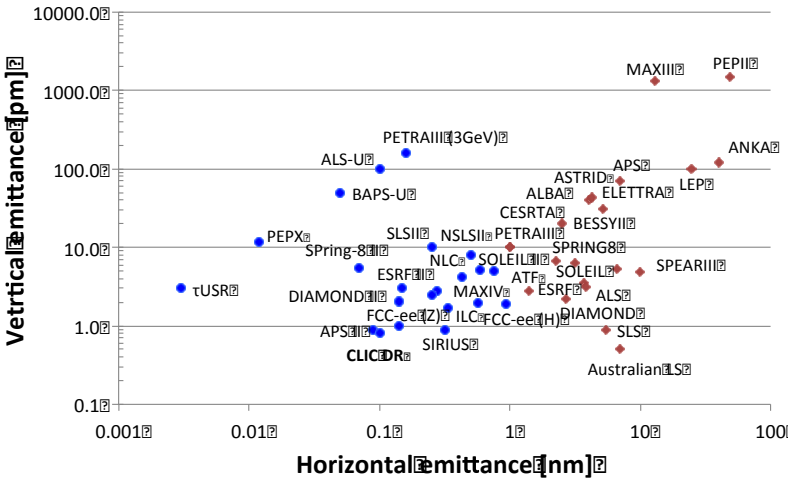
Scandinova (SE)
Jema (ES)
Picatron (CH)

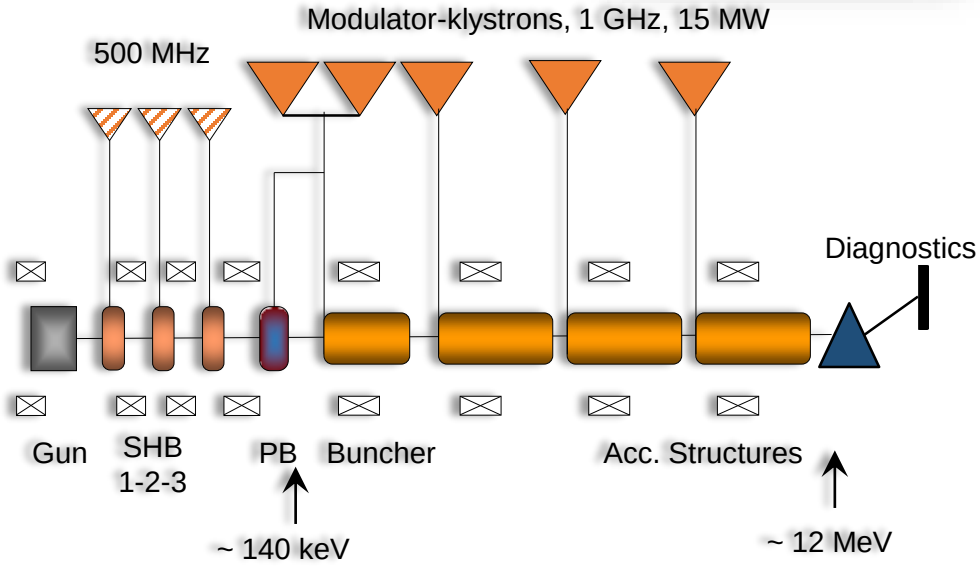
Next phase:

- Qualified companies, technical and commercial documentation, reliable costs (i.e. not first prototype), ideally (small) part of larger market

System tests

- Light sources, FACET/FELs for emittance conservation, Final Focus studies (ATF2), Drive-beam Front End facility at CERN
- Two examples:



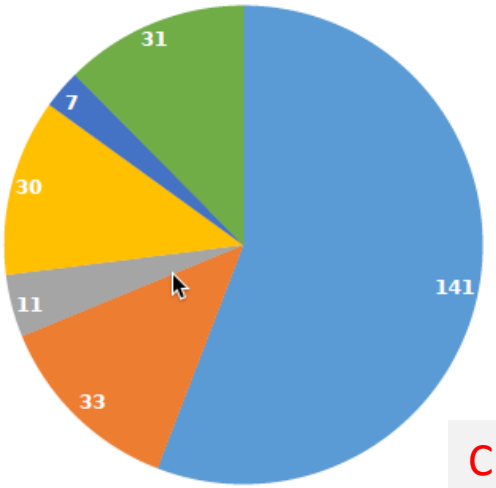


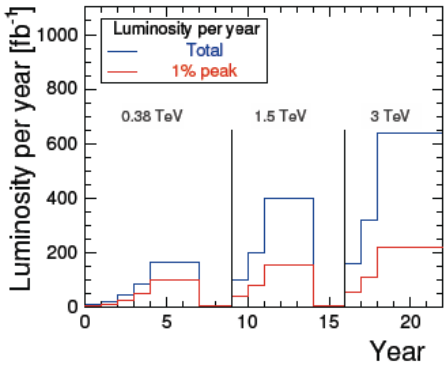
[Summary of design and performances: Daniel Schulte]

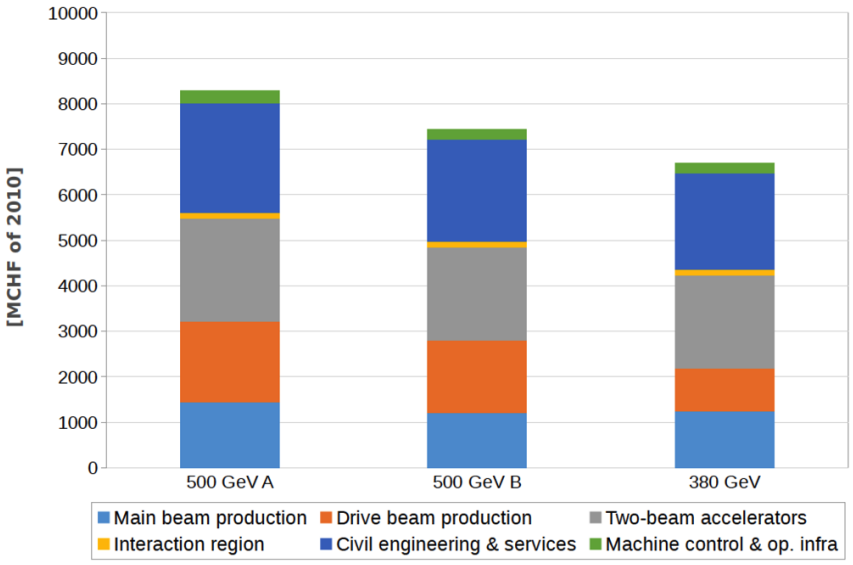
Cost and Power (example)

Table 11: Value estimate of CLIC at 380 GeV centre-of-mass energy.

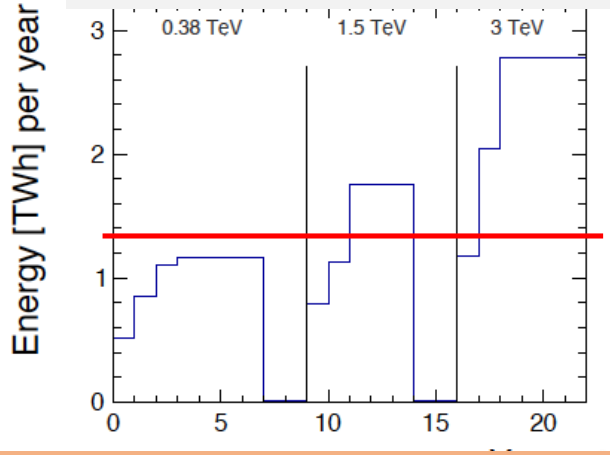
	Value [MCHF of December 2010]
Main beam production	1245
Drive beam production	974
Two-beam accelerators	2038
Interaction region	132
Civil engineering & services	2112
Accelerator control & operational infrastructure	216
Total	6690







CERN energy consumption 2012: 1.35 TWh



Revised bottom up costing and power estimate in progress
->A cost of ~6 BCHF and power ~200 MW remains “reasonable” goals

Reductions in next phase (before construction) possible but require larger projects with industry -> modules, RF and CE for costs; for power RF and magnets

2013 - 2019 Development Phase

Development of a Project Plan for a staged CLIC implementation in line with LHC results; technical developments with industry, performance studies for accelerator parts and systems, detector technology demonstrators

2020 - 2025 Preparation Phase

Finalisation of implementation parameters, preparation for industrial procurement, Drive Beam Facility and other system verifications, Technical Proposal of the experiment, site authorisation

2026 - 2034 Construction Phase

Construction of the first CLIC accelerator stage compatible with implementation of further stages; construction of the experiment; hardware commissioning

2019 - 2020 Decisions

Update of the European Strategy for Particle Physics; decision towards a next CERN project at the energy frontier (e.g. CLIC, FCC)

2025 Construction Start

Ready for construction; start of excavations

2035 First Beams

Getting ready for data taking by the time the LHC programme reaches completion

Among the documents prepared are overviews of the collaboration's plans for next period – the CLIC Preparation Phase 2020-2025:

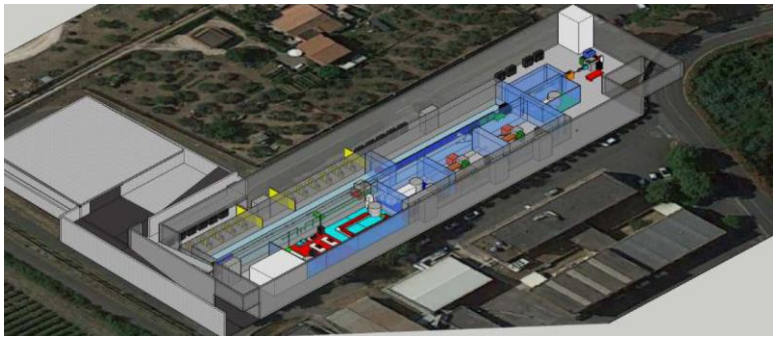
- Such overviews are very important for the European Strategy Update and for planning at CERN
- The collaborative partners plans in the same period are equally crucial – for making a coherent programme for developing "CLIC technologies"

Collaboration

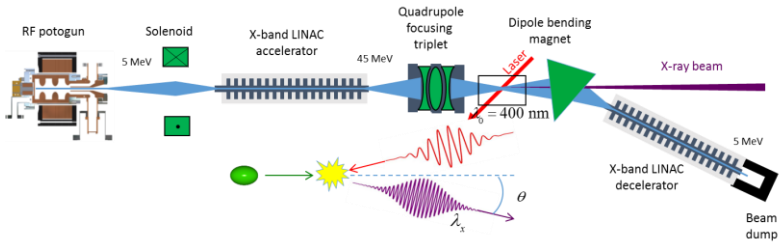
- Today the CLIC project preparation is a very collaborative efforts

- In next phase the potential is even larger:
  - Increasing use of X-band technologies in other projects
  - XFEL Design Study
  - Additionally: Medical applications (proton and very high energy electron therapy)

  - Status of applications (W.Wuensch)



INFN Frascati advanced acceleration facility
EuPARXIA@SPARC_LAB

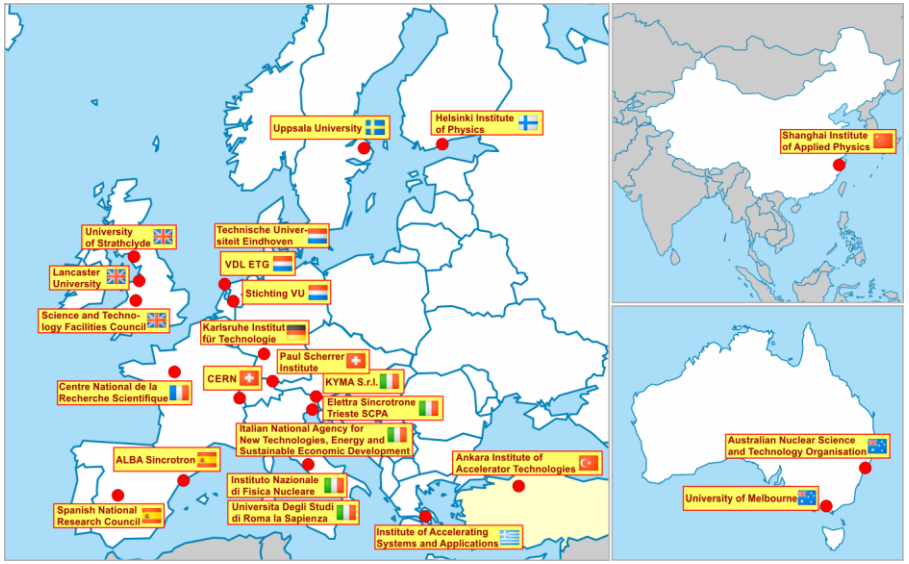


Eindhoven University led
SMART*LIGHT Compton Source

X-band technology

CERN	XBox-1 test stand	50 MW	Operational, connection to CLEAR planned
	Xbox-2 test stand	50 MW	Operational
	XBox-3 test stand	4x6 MW	Operational
Trieste	Linearizer for Fermi	50 MW	Operational
PSI	Linearizer for SwissFEL	50 MW	Operational
	Deflector for SwissFEL	50 MW	Design and procurement
DESY	Deflector for FLASHforward	6 MW	Design and procurement
	Deflector for FLASH2	6 MW	Design and procurement
	Deflector for Sinbad	tbd	Planning
Tsinghua	Deflector for Compton source	50 MW	Commissioning
	Linearizer for Compton source	6 MW	Planning
SINAP	Linearizer for soft X-ray FEL	6 MW	Operational
	Deflectors for soft X-ray FEL	3x50 MW	Procurement

Australia	Test stand	2x6 MW	Proposal submission
Eindhoven	Compact Compton source, 100 MeV	6 MW	Design and procurement
Valencia	S-band test stand	2x10 MW	Installation and commissioning
KEK	NEXTEF test stand	2x50 MW	Operational
SLAC	Design of high-efficiency X-band klystron	60 MW	In progress
Daresbury	Linearizer	6 MW	Design and procurement
	Deflector	tbd	Planning
	Accelerator	tbd	Planning
Frascati	XFEL, plasma accelerator, 1 GeV	4(8)x50 MW	CDR
	Test stand	50 MW	Design and procurement
Groningen	1.4 GEV XFEL Accelerator, 1.4 GeV	tbd	NL roadmap, CDR

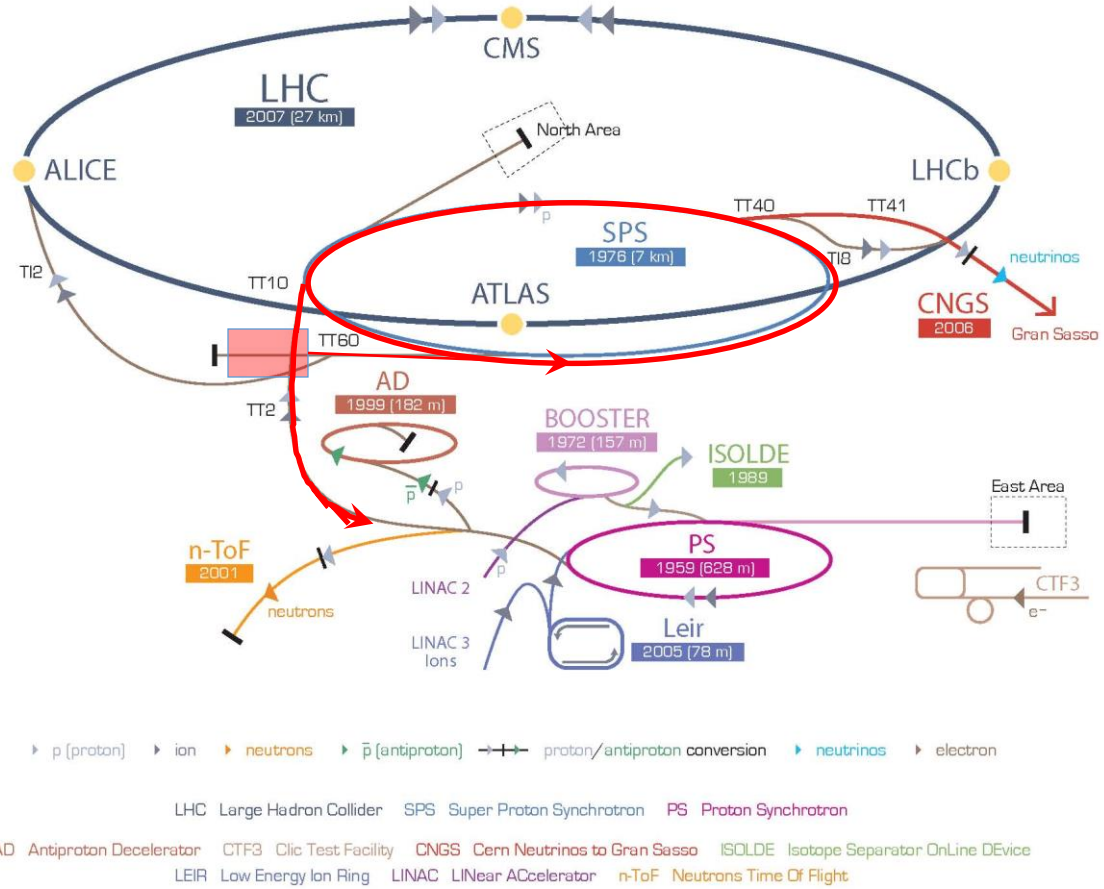


Above: EU Design Study for X-Band FELs 2018-2020: http://compact-light.web.cern.ch

Beyond being a collaboration for CLIC, many groups have their own X-band facilities and components (see overview on the left)

In the CLIC preparation phase:
Take advantage of the widespread use of electron linacs, and rapidly increasing use of X-band → increase collaboration

An e-beam facility at CERN



Accelerator implementation at CERN of LDMX type of beam

X-band based 60m LINAC to 3 GeV in TT4-5.

- Fill the SPS in 2s (bunches 5ns apart) via TT60
- Accelerate to ~15 GeV in the SPS
- Slow extraction to experiment in 10s as part of the SPS super-cycle
- Experiment(s) considered by bringing beam back on Meyrin site using TT10

Beyond LDMX type of beam:
Other physics experiments can be considered (for example heavy photon searches)
Several other possible uses of linac and SPS beams for R&D

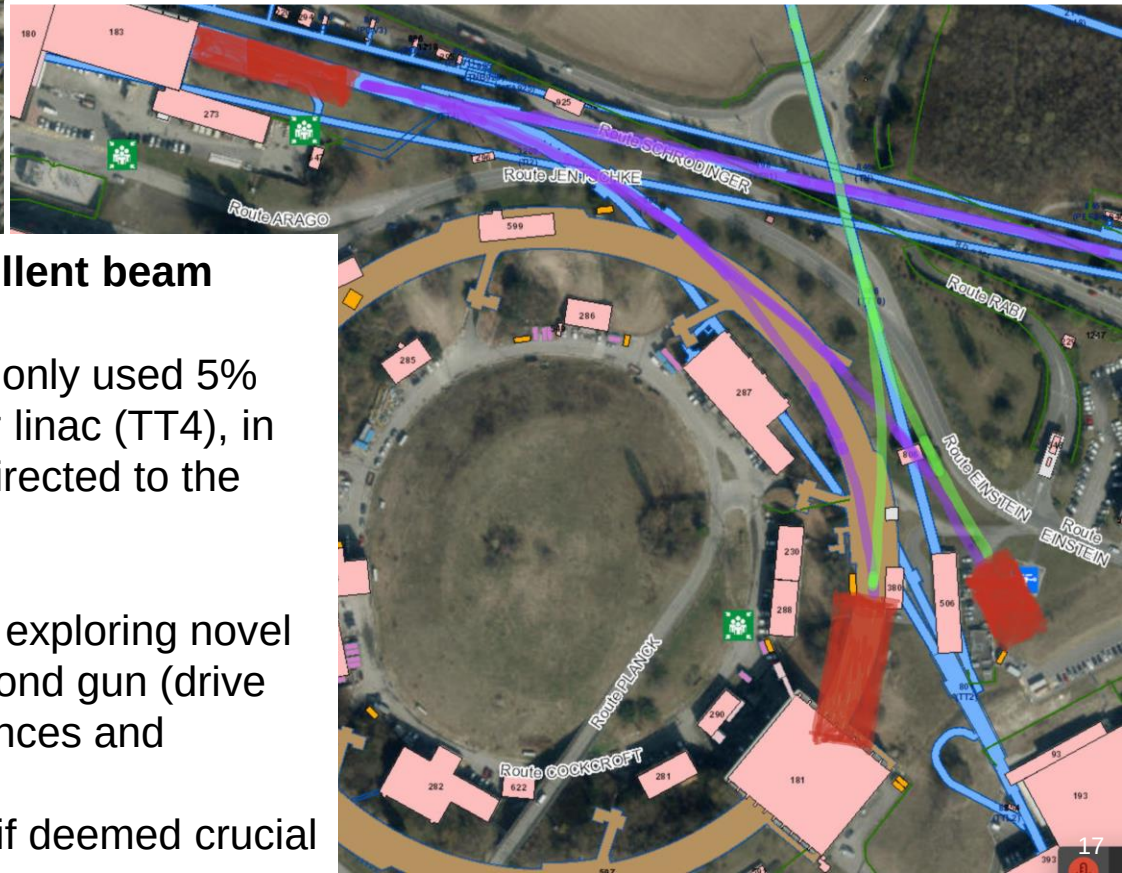
Four/five users groups:

- Physics
- CLIC TDR overlap large
- e-AWAKE
- CLEAR(er)
- DR, positrons and ATF-like studies (possible)

GREEN: ~15 GeV electron beam in SPS

Acc. in SPS, can also be a damped small emittance beam. Long bunches.

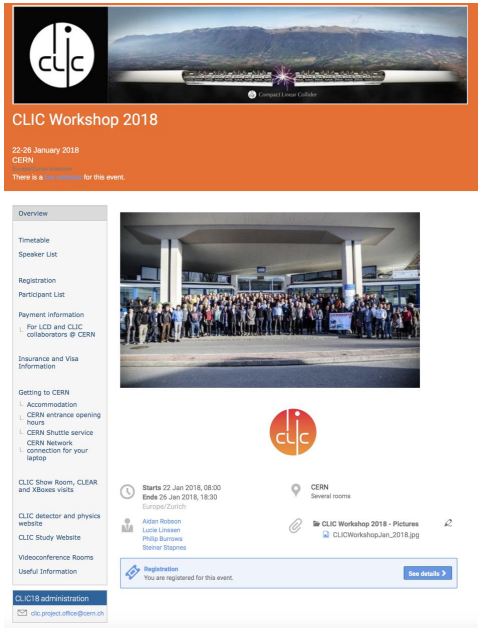
- Extracted to Meyrin side for LDMX like experiment.
- Can also – possibly – be guided to AWAKE.
- Other uses, either extracted or circulating to be worked out.

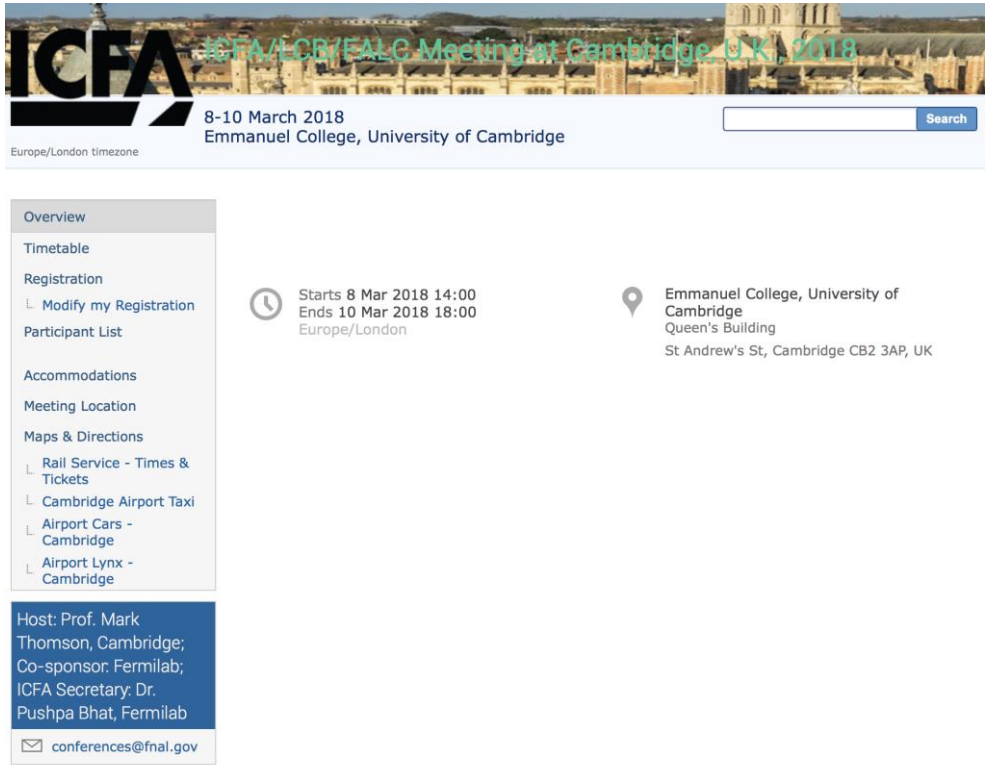


PURPLE: 3 GeV x-band linac with excellent beam quality

Short bunch electrons from X-band linac, only used 5% for filling the SPS. Can be used right after linac (TT4), in new experimental area, and/or possibly directed to the current AWAKE area.

- CLEAR type of research progamme.
- Electrons for drive and/or probe beam exploring novel accelerating techniques, including second gun (drive and probe bunches with variable distances and charges).
- Longer term possibilities for positrons if deemed crucial





Focus

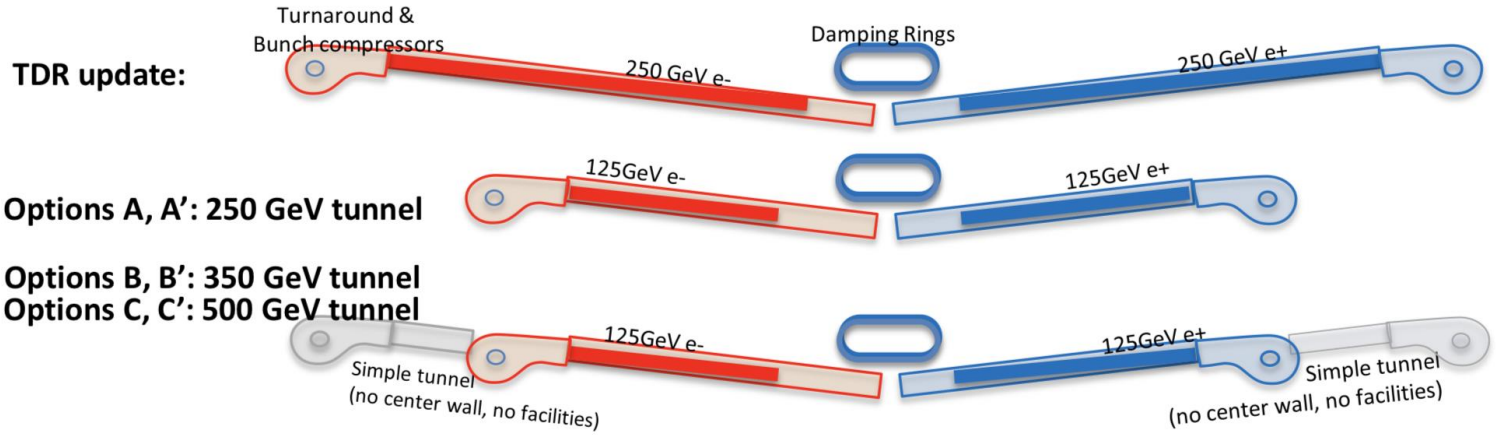
For CLIC workshop

- Status of project (both acc. and phys&det)
- Plans for next phase (2020-25)
- Related projects (X-band) – as FELs, smaller machines

For LCB/ICFA/FALC:

- Development for ILC in Japan
- European Strategy
- … + normal ICFA matters …

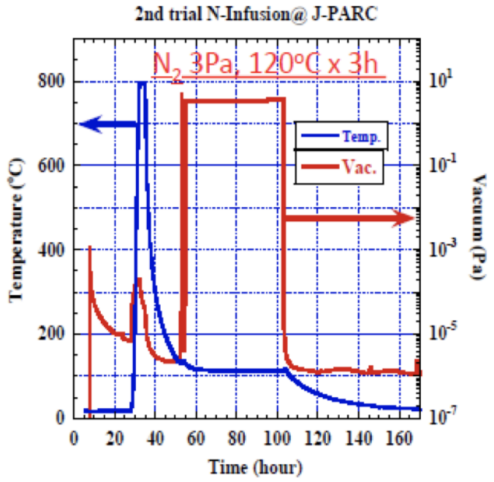
ILC250 cost（in ILCU）

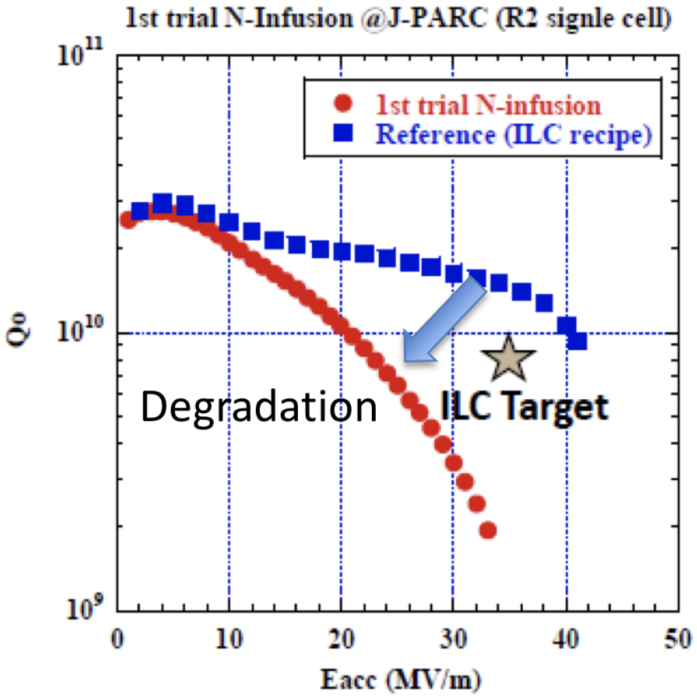


	e+/e- collision [GeV]	Tunnel Space for [GeV]	Value Total (MILCU)	Reduction [%]
TDR	250/250	500	7,980	0
TDR update	250/250	500	7,950	-0.4
Option A	125/125	250	5,260	-34
Option B	125/125	350	5,350	-33
Option C	125/125	500	5,470	-31.5
Option A'	125/125	250	4,780	-40
Option B'	125/125	350	4,870	-39
Option C'	125/125	500	4,990	-37.5

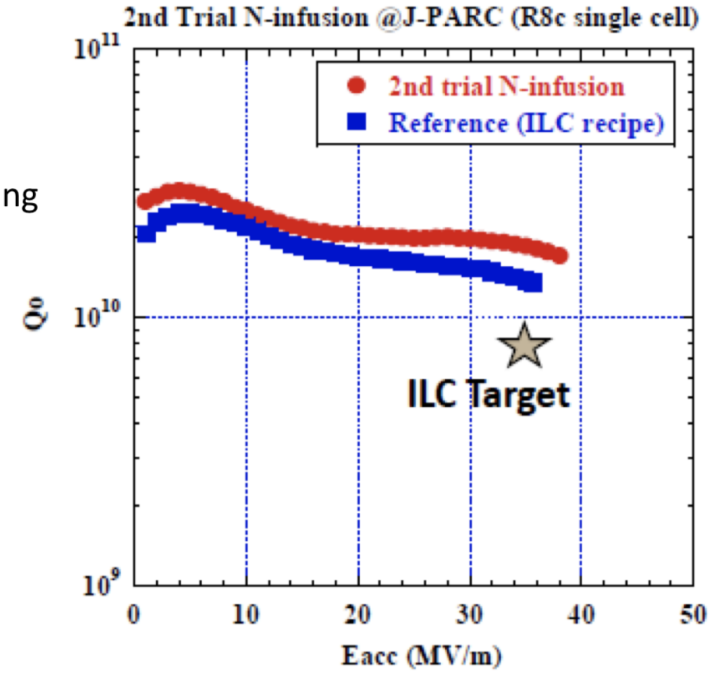
Recent N-Infusion result at KEK

- First trial of N-infusion showed degradation occurred at >5MV/m.
- Degradation seems to come from background vacuum during 120deg. N-Infusion.
- Background vacuum during N-Infusion was improved from 1.7e-2Pa to 1e-5Pa using larger turbo-molecular pump with reduced rotation speed.
- Second trial of N-Infusion was done with improved background vacuum during N-Infusion (120 deg.)
- It showed successful N-Infusion result (Q value +35% gradient +5%).





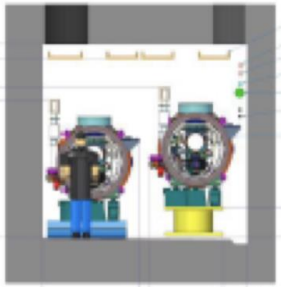
After the vacuum pumping system improvement



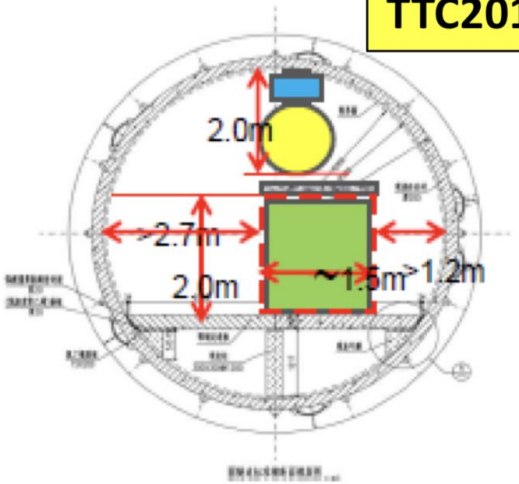
EXFEL，LCLS-II(HE) and Shanghai XFEL

TTC2018 D.Wang

European XFEL



LCLS-II

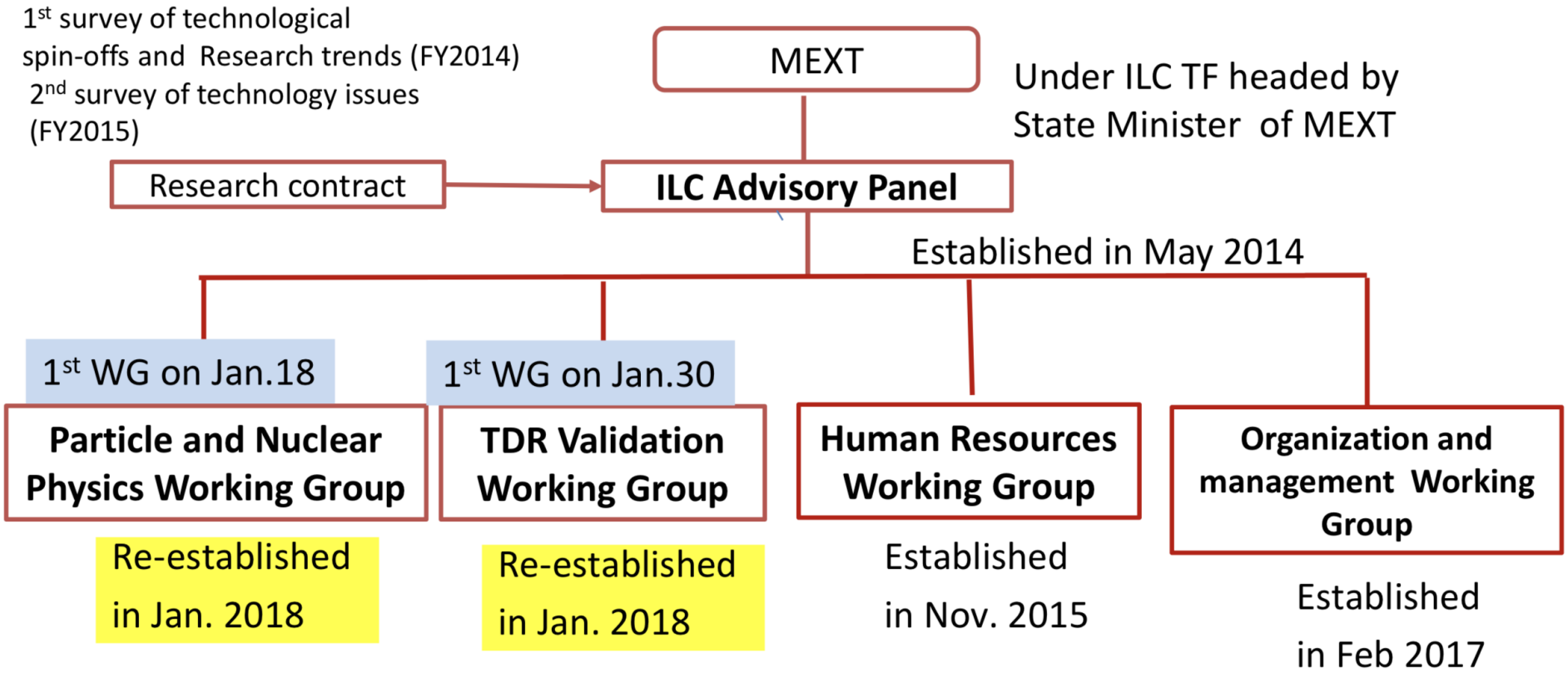


	EuropeanXFEL	LCLS-II (HE)	Shanghai XFEL
RF mode	Pulsed	CW	CW
Power source	Klystron	SSA	SSA
Install	Single ac Tunnel	Tunnel + Gallery	Single ac Tunnel
2K heat load/CM	~20w/CM	~80w/CM	~80w/CM
Tunnel slope	~	0.5%	~
N of modules	~100	~35 (+19)	~75
2K capability	~3kW	~ 2 x 4kw	~ 3x4 or 4x3 kw

Projected relative errors at 250 GeV, 2 ab^{-1}, in %

P(e⁻)/P(e⁺)	no pol.	80%/0%	80%/30%
$g(hbb)$	1.33	1.13	1.09
$g(hcc)$	2.09	1.97	1.88
$g(hgg)$	1.90	1.77	1.68
$g(hWW)$	0.978	0.683	0.672
$g(h\tau\tau)$	1.45	1.27	1.22
$g(hZZ)$	0.971	0.693	0.682
$g(h\gamma\gamma)$	1.38	1.23	1.22
$g(h\mu\mu)$	5.67	5.64	5.59
$g(h\gamma Z)$	14.0	6.71	6.63
$g(hbb)/g(hWW)$	0.911	0.909	0.861
$g(h\tau\tau)/g(hWW)$	1.08	1.08	1.02
$g(hWW)/g(hZZ)$	0.070	0.067	0.067
Γ_h	2.93	2.60	2.49
$BR(h \to inv)$	0.365	0.327	0.315
$BR(h \to other)$	1.68	1.67	1.58

ILC Advisory Panel in MEXT



- Particle and Nuclear Physics Working Group and TDR Validation Working group are re-established to evaluate ILC250GeV.
- The TDR validation working group were held on Jan.30, Mar.2 and will be held on Mar.22.
- The WG will finish middle of May (?)

KEK
High Energy Accelerator Research Organization

ILC Advisory Panel at MEXT (1)

- Following the LCB/ICFA statement on ILC250 in November 2017, we officially proposed it to the MEXT, and the proposal was discussed at the ILC Advisory Panel meeting in December.

- Tatsuya Nakada explained the statement in detail at the Panel meeting. He also summarized the studies leading up to the ICFA Statement.

- Main concern given by the panel member:
  - The Panel had previously understood that the ILC in Japan would be a global project, globally led and globally financed such as ITER, whereas the ICFA Statement suggests that the project is Japanese-led with majority contribution coming from Japan. There is a substantial change in the nature of the project.
  - Tatsuya explained how Germany took lead in XFEL and how the Japanese 250 GeV ILC scenario could be seen in a similar manner.

KEK
High Energy Accelerator Research Organization

ILC Advisory Panel at MEXT (2)

- Eckhard Elsen talked about: physics results from LHC by now, search for new physics at HL-LHC, and schedule of the European strategy update. He also said that the conclusion of ILC has to be made by the end of 2018.

- The panel agreed to re-start physics and TDR working groups to evaluate physics potential, cost and technical issues of the new ILC250 proposal.

- It is expected that the conclusion of the Advisory Panel will be given in summer 2018 after hearing conclusions of the working groups, and the outcome will be sent to the Science Council of Japan for the final evaluation of the project.

ILC Advisory Panel at MEXT (3)

- Meetings of the physics working group
  - Kazu Hanagaki (KEK, ALTAS) discussed physics results from LHC.
  - Keisuke Fujii (KEK, ILD) discussed physics potential of ILC250.
  - Shoji Asai (Tokyo) discussed role of the ILC250 to answer remaining big questions in particle physics.
  - Georg Weiglein (DESY, theorist) discussed what we would loose by reducing the ILC energy down to 250GeV.
  - Agreed to study EXFEL and FAIR in detail in the working group meetings in April.

- Meetings of the TDR working group
  - The working group discussed governmental regulation regarding ILC and analysis of risk based on the report by NRI.
  - It also discussed issues of civil engineering and building construction.
  - Cost of the ILC250 is a big issue, but it was discussed in a closed session.

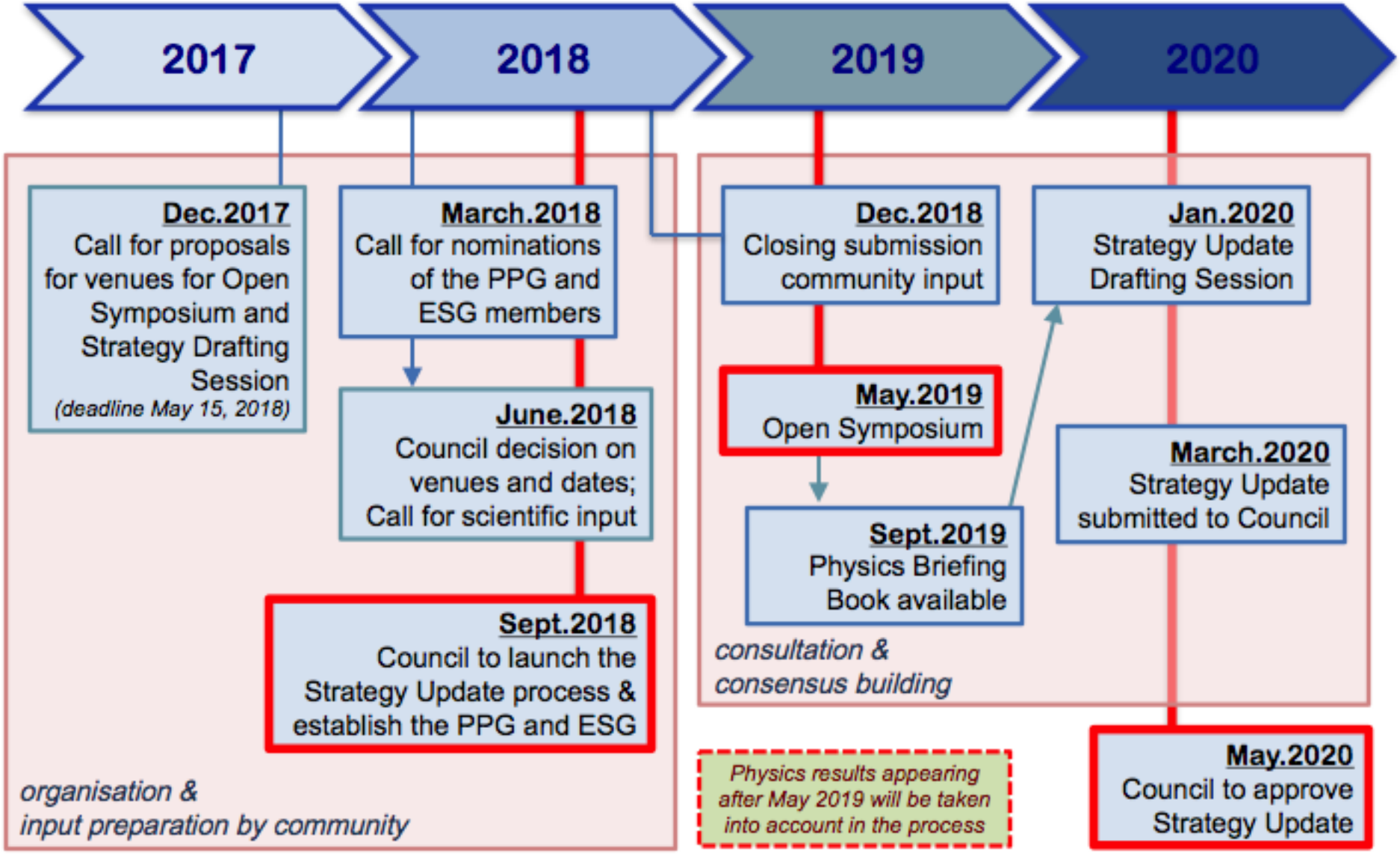
KEK
High Energy Accelerator Research Organization

Visit of Japanese Delegates to France and Germany

- → Satoru Yamashita's talk

- Comment on Mr.Itakura's visit to Europe/CERN
  - Yasuhiro Itakura is a Deputy Director General, Research Promotion Bureau, MEXT, and is in charge of ILC at MEXT.
  - It was very good that MEXT executive had a chance to discuss directly with European physicists and government officials.
  - He still seemed to be interested in global scheme for ILC250 like ITER.

European Particle Physics Strategy *Update*



Call for INPUT

Open call to all members of the particle physics community

The CERN Council has set itself the objective of updating the European Strategy for Particle Physics by May 2020. To achieve this, it has established a Strategy Secretariat to which it has assigned the task of organising the update process.

The Strategy update process will include two major events: an "Open Symposium" and a "Strategy Drafting Session".

At the Open Symposium, to be held in the second half of May 2019, the community will be invited to debate the scientific input into the Strategy update, which will take the form of a "Briefing Book". This will be prepared over the summer of 2019 by a Physics Preparatory Group (PPG) and submitted to the European Strategy Group (ESG) for consideration before and during its Strategy Drafting Session to be held in the second half of January 2020.

To prepare the Open Symposium, the Strategy Secretariat hereby calls upon the particle physics community in universities, laboratories, national institutes and institutions to submit written input following the enclosed guidelines.

The deadline for input is **18 December 2018**.

Input should be submitted via a portal that will be created on the Strategy update website, which will be available from the beginning of October 2018, once the Strategy update has been formally launched by the CERN Council. The link to this website will appear on the CERN Council's web pages - https://council.web.cern.ch/en - and be widely communicated through the appropriate channels.

The Strategy Secretariat
Update of the European Strategy for Particle Physics
EPPSU-Strategy-Secretariat@cern.ch

INPUT Guidelines

Contact:
EPPSU-Strategy-Secretariat@cern.ch

Guidelines for submitting input for the 2020 update of the European Strategy for Particle Physics

Cover page (1 page)
Each document submitted should carry a single cover page containing no more than the title, the contact person(s) and an abstract.

Comprehensive overview (maximum 10 pages)
This core part of the document must be no more than 10 pages long (excluding the cover page) and must provide a comprehensive and self-contained overview of the proposed input. It should address:

- scientific context,
- objectives,
- methodology,
- readiness and expected challenges.

Addendum
A separate addendum is to be provided addressing the following topics (where relevant):

- interested community,
- timeline,
- construction and operational costs (if applicable),
- computing requirements.

Format and deadline for submission
The cover page and the comprehensive overview are to be submitted as a single file, the "main document", in portable document format (pdf) by 18 December 2018. The addendum is to be submitted as a separate file by the same deadline. A dedicated submission portal will be available on the EPPSU website as of October 2018, once the Strategy update has been formally launched by the Council at its September 2018 Session. The link to the EPPSU website will appear on the CERN Council's web pages - https://council.web.cern.ch/en - and be widely communicated through the appropriate channels.

Distribution
Both documents submitted (main and addendum) will be passed on to the Physics Preparatory Group (PPG) and the European Strategy Group (ESG). Unless explicitly requested otherwise, they will also be made public. The option not to make either document public will be available upon submission via the dedicated portal.

LC inputs

- For CLIC and ILC (two documents)
  Physics summaries at 380 and 250 GeV

- For CLIC – a project implementation description
- For ILC – a European Action Plan for accelerator and detector contributions

- Several – and maybe more important – longer support documents

Chapter	Section
Intro	
380 GeV	
	Injectors
	DR
	RTML
	ML
	BDS
	MDI
	Post. Coll. and beam-dump
	Integrated studies
	DB acc
	DB recomb
	Beam transp
	Decelerators
	Dump lines
380 KL	
	Introduction and parameters
	Main linac design
	Main Linac technical unit
Higher energies (technical description)	
	Introduction, and example parameter
	upgrade from Klystron version
	Impact on systems
	Progress on 3 TeV BDS
	Energy upgrades with future techonl
Technologies	
	Sources and injectors
	Magnets
	PETs and all acc. structures
	Klystrons
	Modulators
	Module
	Pulse compressors
	Vacuum
	Instrumentation
	Beam transfer
	Beam interception devices
	MDI
	Beamdumps
	Controls, timing, feedback
	Machine prot
	Alignment
	Stabilzation
	Ground motion measurements
	Undulators
CEIS	
	Civ. Eng
	Electicity supply
	CV
	Transp. and Install
	Safety systems
	Radiation studies
	Cryo
Implementation	
	Schedule and staging
	Cost
	Power
	Key issues (studies not complete)
Performance	
	Introduction
	Drive Beam
	BDS beam dynamics
	Main linac beam dynamics
	RF systems
	DR
	Availability studies
	Other effects

CLIC main acc. docu.

European Strategy Update: General ILC Project Description

- Comprehensive overview (10 pages)
  - K. Fujii, C. Grojean, J. List, M. Peskin, J. Tian, J. Brau, J. Fuster
- Appendix/Addendum (proposed, section authors to be recruited)
  - ~ 90 pages
    - Introduction 5 pages
    - ILC Machine Design 15 pages
    - ILC running scenario (w. pol.) 5 pages
    - Physics Case (250 GeV) 10 pages
    - Detectors 10 pages
    - Physics Simulations: Higgs 20 pages
    - Physics Simulations: Searches 5 pages
    - Physics at 500 GeV 10 pages
    - Physics Simulations at 500 GeV 10 pages
    - Conclusion

LCC Budget

Reminder: The decision was made in late 2015 not to request additional common funds and spend down the common fund balance.

The balance of the common fund is supporting:
LCC Director salary and travel
Contract buyout and travel support for the Associate Director of Physics and Detectors
Administrative support
Infrastructure

If a one year extension is needed, there will be a request for 2019.

Final agreement in the summer FALC meeting, but general agreement to proceed on this basis and aim to provide funding in 2019, as a continuation or a transition period, depending on ILC developments this year.

ALCW2018 is the next in a series of regional linear collider workshops held around the world. The purpose of the workshop is the continued development of the physics case, and the advancement of detector and accelerator designs for a high energy linear electron-positron collider.

Asian Linear Collider Workshop 2018

May 28 - June 1, 2018 **Fukuoka International Congress Center** *Fukuoka, JAPAN*

ALCW2018 is the next in a series of regional linear collider workshops held around the world. The purpose of the workshop is the continued development of the physics case, and the advancement of detector and accelerator designs for a high energy linear electron-positron collider. The workshop will also provide recent information and discussion about the evolution of both the ILC and CLIC projects. It will have plenary sessions and parallel sessions, including meetings of detector concept groups.

https://agenda.linearcollider.org/event/7826/

Kyushu Univ.

KEK

ACFA/AsiaHEP

LCC

International Organizing Committee (IOC)

Ties Behnke (DESY)
James Brau (University of Oregon)
Brajesh Choudhary (University of Delhi)
Dmitri Denisov (FNAL)
Lyn Evans (LCC)
Keisuke Fujii (KEK)
Juan Fuster (IFIC-Valencia)
Jie Gao (IHEP)
Christophe Grojean (DESY)
George W.S. Hou (National Taiwan University)
Kiyotomo Kawagoe (Kyushu University, Chair)
Sachio Komamiya (University of Tokyo)
Lucie Linssen (CERN)
Benno List (DESY)
Shinichiro Michizono (KEK)
Akiya Miyamoto (KEK)
Hitoshi Murayama (UC Berkley / Kavli IPMU)
Yasuhiro Okada (KEK)
Michael Peskin (SLAC)
Frank Simon (MPP)
Steinar Stapenes (CERN)
Akira Sugiyama (Saga University)
Geoffrey Taylor (University of Melbourne)
Maxim Titov (CEA Saclay)
Yifang Wang (IHEP)
Andy White (University of Texas Arlington)
Marc Winter (CNRS IPHC)
Eunil Won (Korea University)
Hitoshi Yamamoto (Tohoku University)
Akira Yamamoto (KEK)
Satoru Yamashita (University of Tokyo)

Local Organizing Committee (LOC)

Takahiro Fusayasu (Saga University)
Daniel Jeans (KEK)
Kiyotomo Kawagoe (Kyushu University, Chair)
Mitsuaki Nozaki (KEK)
Saori Shigematsu (Kyushu University)
Taikan Suehara (Kyushu University, Chair)
Akira Sugiyama (Saga University)
Junji Urakawa (KEK)
Tamaki Yoshioka (Kyushu University)

Tentative plan

May 28 (Mon)	May 29 (Tue)	May 30 (Wed)	May 31 (Thu)	June 1 (Fri)		June 2 (Sat)
registration opening plenary	physics detector accel industry parallel	plenary	physics detector accel parallel	plenary		ILD
lunch	lunch	lunch	lunch	lunch		
physics detector accel parallel	physics detector accel industry parallel	physics detector accel parallel	plenary	ILD	SiD	
reception	public lecture	dinner				

Registration is open now

https://agenda.linearcollider.org/event/7826/