

# **LCUK ILC community meeting**

## **18/9/20**

**Philip Burrows**

**Context for today's meeting:**

**European Strategy Update**

**ICFA launch of ILC International Development Team**

**UKRI infrastructure exercise**

**Preparing for update of STFC PP roadmap**

# European Strategy Update



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# European Strategy Update



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- Europe, together with its international partners, should investigate the technical and financial feasibility of a future hadron collider at CERN with a centre-of-mass energy of at least 100 TeV and with an electron-positron Higgs and electroweak factory as a possible first stage. Such a feasibility study of the colliders and related infrastructure should be established as a global endeavour and be completed on the timescale of the next Strategy update.

**The timely realisation of the electron-positron International Linear Collider (ILC) in Japan would be compatible with this strategy and, in that case, the European particle physics community would wish to collaborate.**

# ILC International Development Team (IDT)

## ICFA announces a new phase towards preparation for the International Linear Collider **4/8/20**

At its 86th meeting held today, ICFA approved the formation of the International Linear Collider International Development Team as the first step towards the preparatory phase of the ILC project, with a mandate to make preparations for the ILC Pre-Lab in Japan.

A description of the mandate and structure of the ILC International Development Team was also approved by ICFA today.

The Team will commence its work immediately and is expected to complete it by the end of 2021.

The ILC International Development Team will work towards making a timely realization of the ILC possible.

ICFA thanks the Linear Collider Collaboration led by Dr. Lyn Evans for its excellent work over the past several years.

### Contacts:

Geoffrey Taylor (ICFA, Chair) - The University of Melbourne

Tatsuya Nakada (Chair, Executive Board, ILC International Development Team) - EPFL, Lausanne

# UKRI infrastructure exercise

- UKRI set up Infrastructure Advisory Committee (IAC)
- Research councils asked to submit infrastructure projects essentially capital projects to be funded via IAC
- LCUK prepared ILC case, submitted to STFC 29/4/20  
**submitted as 'preliminary activity (stage 3a)'**
- ILC 'noted' and 'flagged':  
**'As noted, the ILC proposal was one this was seen to have significant future potential, and as such, STFC would like to 'flag' this proposal to the UKRI Infrastructure Advisory Committee (IAC). I should note that this is not a formal submission to the IAC, and additionally there is no budget associated with this activity, but it will inform their future planning.'**

Ailidh Woodcock 8/7/20

# UKRI infrastructure exercise

- **Stage 1.** Very early stage. Clear challenge identified but strategic and/or scientific community need for infrastructure is yet to be established. Project is not ready for formal submission for funding.
- **Stage 2.** Need for infrastructure confirmed and options for addressing need are being developed and assessed (strategic options appraisal stage). The preferred option has not been decided.
- **Stage 3a.** Need for infrastructure confirmed and preferred option broadly decided however further work is needed to confirm specification, delivery mechanism and/or costs before a detailed business case can be developed.
- **Stage 3b.** Need for infrastructure confirmed and ready for full implementation. Options analysis completed, preferred infrastructure option decided with known specifications and costs (this could be a point estimate or range but with high confidence and on understanding that the upper limit cannot be exceeded).

# UKRI infrastructure exercise

Cost tables for the Preliminary Activity. You must fill this in.

Table 1. Preliminary activity costs (£m)	Year										Total
	1	2	3	4	5	6	7	8	9	10	
Traditional capital costs	3	6	9	13	15						<b>46</b>
Traditional resource costs	0.7	1.7	1.7	2.2	2.7						<b>9</b>
All costs requested from Fund	<b>3.7</b>	<b>7.7</b>	<b>10.7</b>	<b>15.2</b>	<b>17.7</b>						<b>55</b>
Other funding agreed/anticipated: international partner funding	<b>20</b>	<b>40</b>	<b>60</b>	<b>80</b>	<b>100</b>						<b>300</b>

**Essentially capital (with some resource) cost**

**Covers ILC IDT / pre-lab phase ~ 5 years**

**Ramp-up towards ILC construction**

**Design, assembly, fabrication, testing capability in UK**

**All subject to proposal, UKRI review, and approval**



# UK interests

- Historically very strong community interest in ILC + CLIC  
LC-ABD, CLIC-UK, LCFI, CALICE-UK ...
- Most *direct* UK investment in ILC ended in 2012, apart from a modest travel + R&D fund (£150k, spent up 2019)
- Community R&D efforts supported via JAI/CI grants, university CGs + EU projects  
EJADE, EUDET, AIDA(2020) ...

# UK interests

## ILC business case, STFC 'priority projects', 2018

Institute	Accelerator					Detector			Physics	
	Technical system	BDS/MDI	DR	Beam dumps	e+ source	RF	Si tracker	Calorimetry		DAQ
Birmingham	X						X	X		X
Bristol							X		X	X
Cambridge								X		X
STFC – Daresbury Laboratory	X				X	X				
Durham IPPP										X
Edinburgh							X			X
Glasgow							X			X
Imperial College								X	X	X
Lancaster					X	X	X			X
Liverpool			X				X			X
Manchester	X					X	X			X
Open University							X			
Oxford	X	X				X	X		X	X
QMUL							X			X
STFC – RAL				X			X			X
RHUL	X								X	X
Sheffield							X			X
Southampton										X
Sussex									X	X
UCL	X							X	X	X
Warwick							X			X

# Points for discussion

- **How will UK engage with ILC IDT?**  
well informed, well positioned, leadership in ILC where appropriate
- **STFC  $\leftrightarrow$  KEK bilateral discussions, MoU?**
- **European regional cooperation, including CERN**
- **Community engagement**
- **Prepare for UK PP roadmap update**
- **Synergies with FCCee, CLIC, CEPC, (muon collider)**
- **CERN ‘Higgs platform’? ECFA Higgs physics/det workshops**
- **ECFA detector R&D panel + European accelerator R&D roadmap ...**