

DERNIERES NOUVELLES DE L'ILC

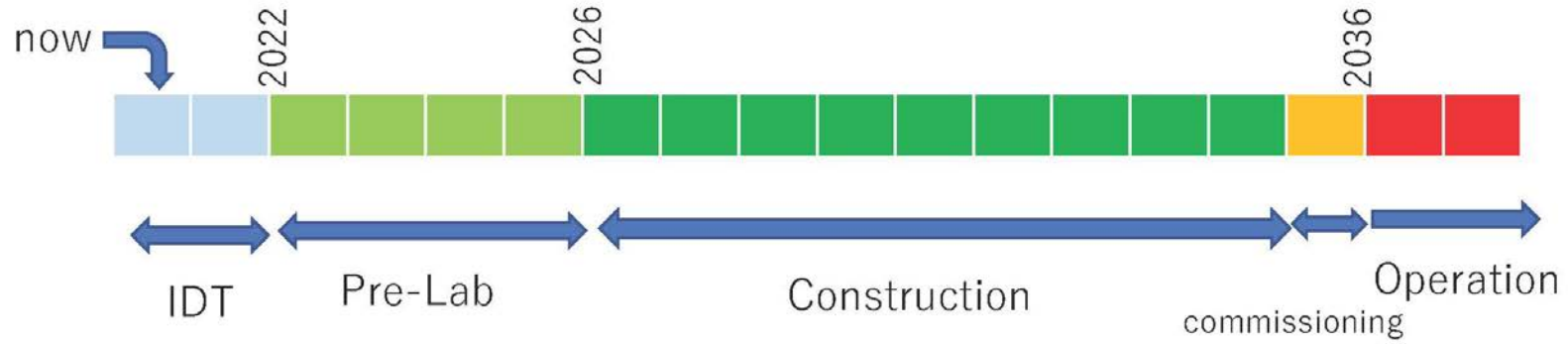
News from AWLC2020: <https://conf.slac.stanford.edu/awlc2020/>

**Linear Collider workshop of the American community held last week with
~500 registrants**

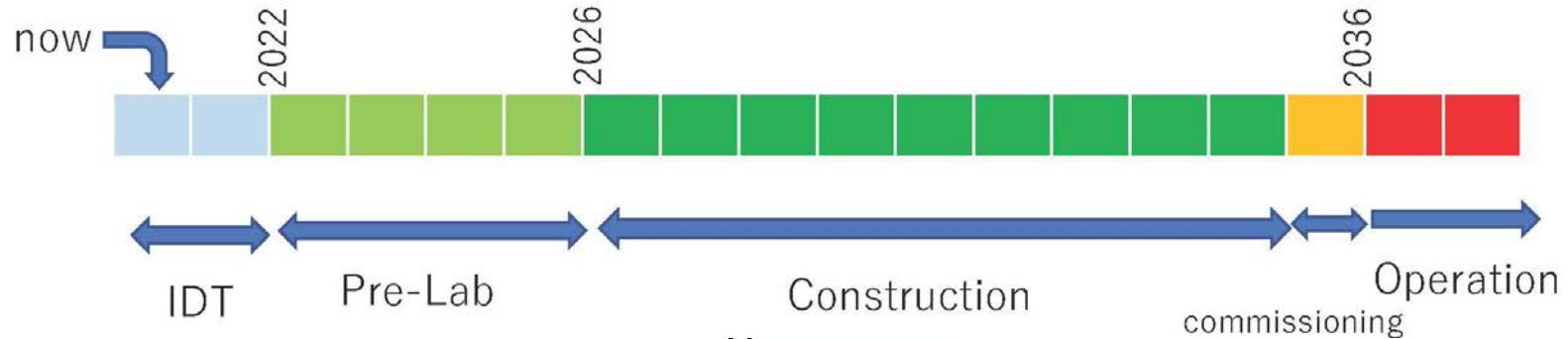
Now quasi-exclusively devoted to ILC

Nakada

ILC TIMELINE and IDT STRUCTURE



ILC TIMELINE and IDT STRUCTURE



ICFA

ILC-IDT

Executive Board

- Andrew Lankford (UC Irvine): Americas Liaison
- Shinichiro Michizono (KEK): Working group 2 Chair
- Hitoshi Murayama (UC Berkeley/U. Tokyo): Working group 3 Chair
- Tatsuya Nakada (EPFL): Executive Board Chair and Working group 1 Chair
- Yasuhiro Okada (KEK): KEK Liaison
- Steinar Stapnes (CERN): Europe Liaison
- Geoffrey Taylor (U. Melbourne): Asia-Pacific Liaison

Working group 1 Pre-lab set-up	Working group 2 Accelerator	Working group 3 Physics & Detectors
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Scientific secretary: Tomohiko Tanabe (KEK)
Communication team led by Rika Takahashi (KEK)

Unlike LCB/LCC, **ILC-IDT is focused on the ILC.**
KEK provides administrative, logistic and some financial support.

IDT GOALS FOR 2021

Nakada

- Try to establish
 - a preliminary list of **Pre-lab tasks and deliverables** and **national/regional laboratories** which might be interested in contributing to those
 - **Pre-lab resource needs** for the regional activities and central office (a few % of the ILC cost)
 - a preliminary **proposal for the Pre-lab organisation and governance** by the end of this year.
 - ⇒ **Needed for the Pre-lab Japanese funding request preparation** by KEK in 2021 to obtain funding in 2022: a similar requirement for the other countries expected.

IDT GOALS FOR 2022

Nakada

- Finalise all the inputs needed to set-up the Pre-lab
- Try to attract more (new) people for the physics and detector activities by
 - Encouraging the next Linear Collider workshop (LCWS series) in spring 2021 in Europe where the programme could include a broad discussion on the ILC physics opportunities. (see talk by S. Stapnes)
 - Organising a dedicated workshop in autumn 2021 to discuss ideas for experiments at the ILC, at the collision point and beyond covering broad physics spectra, and associated R&D activities.

IDT ACCELERATOR ACTIVITIES

Michizono

IDT-WG2 organization



IDT WG2
Shin Michizono (Chair)
Benno List (Deputy)

Charges of Sub-groups

- Discuss the topics for
 - technical preparation (remaining topics) at Pre-lab
 - planning and preparation for mass production at Pre-lab
 - possible schedule at Pre-lab
 - international sharing candidates of these activities
- Report to the IDT-WG2

All members belong to some sub-group(s).

SRF

Yasuchika Yamamoto	KEK
Nuria Catalan	CERN
Dimitri Delikaris	CERN
Rongli Geng	JLAB
Hitoshi Hayano	KEK
Bob Laxdal	Triumpf
Matthias Liepe	Cornell
Olivier Napoly	CEA
Sam Posen	FNAL
Robert Rimmer	JLAB
Marc C. Ross	SLAC
Akira Yamamoto	KEK

DR/BDS/Dump

Toshiyuki Okugi	KEK
Karsten Buesser	DESY
Philip Burrows	U. Oxford
Jenny List	DESY
Thomas Markiewicz	SLAC
David L. Rubin	Cornell
Nikolay Solyak	FANL
Luis Garcia Tabares	CIEMAT
Nobuhiro Terunuma	KEK
Glen White	SLAC
Kaoru Yokoya	KEK

Sources

Kaoru Yokoya	KEK
Joe Grames	JLAB
Hitoshi Hayano	KEK
Masao Kuriki	U. Hiroshima
Benno List	DESY
Gudrid	U. Hamburg
Moortgat-Pick	

Civil engineering

Nobuhiro Terunuma	KEK
John Andrew Osborne	CERN
Tomoyuki Sanuki	U. Tohoku

ACCELERATOR TECHNICAL PREPARATIONS AND POSSIBLE SHARING

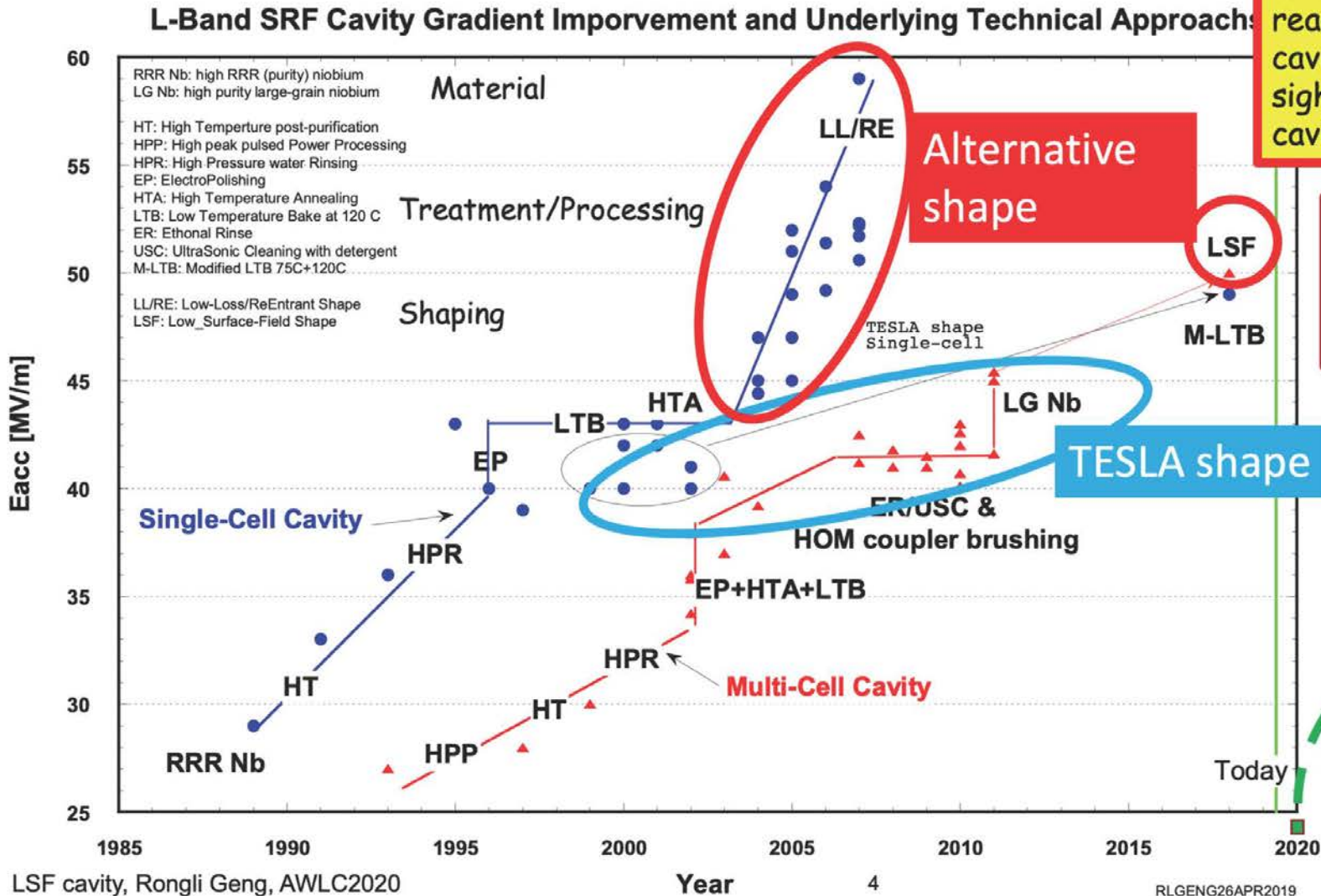
Michizono

Component	Issue	Summary of tasks	Candidates for collaboration w/ Japan
SRF Cavity	Mass production, incl. automation	Performance statistics, mass production technology	France, Germany, US
	Cryomodule transport	Performance assurance after transport	France, Germany, US
Positron Source	Rotating target	Exchanging target, system design	CERN, France, Germany, US + industry-academia efforts
	Magnetic focusing system	System design	France, Germany, Russia, US
	Photon dump*	System design	CERN, Germany, US
Damping Ring	Fast kicker	Test of long-term stability, system design	CERN, Italy
	Feedback	Test at SuperKEKB	Italy
Interaction Region	Beam focus/position control	Test of long-term stability	CERN, UK
Beam Dump	Total system	System design	CERN, US
	Beam window, cooling water circulation	Durability, exchangeability, earthquake-resistance	CERN, US + industry-academia efforts

Taylor

SRF CAVITY IMPROVEMENTS

Technical Approaches to Gradient



Cavity shaping led to gradient breakthrough with Nb cavities reaching 45 - 59 MV/m in 1-cell cavities ten yrs ago & emerging sight of 50 MV/m in multi-cell cavities in last two years

~50 MV/m observed in TESLA shape 1-cell Nb cavities with modified LTB 75°C+120°C

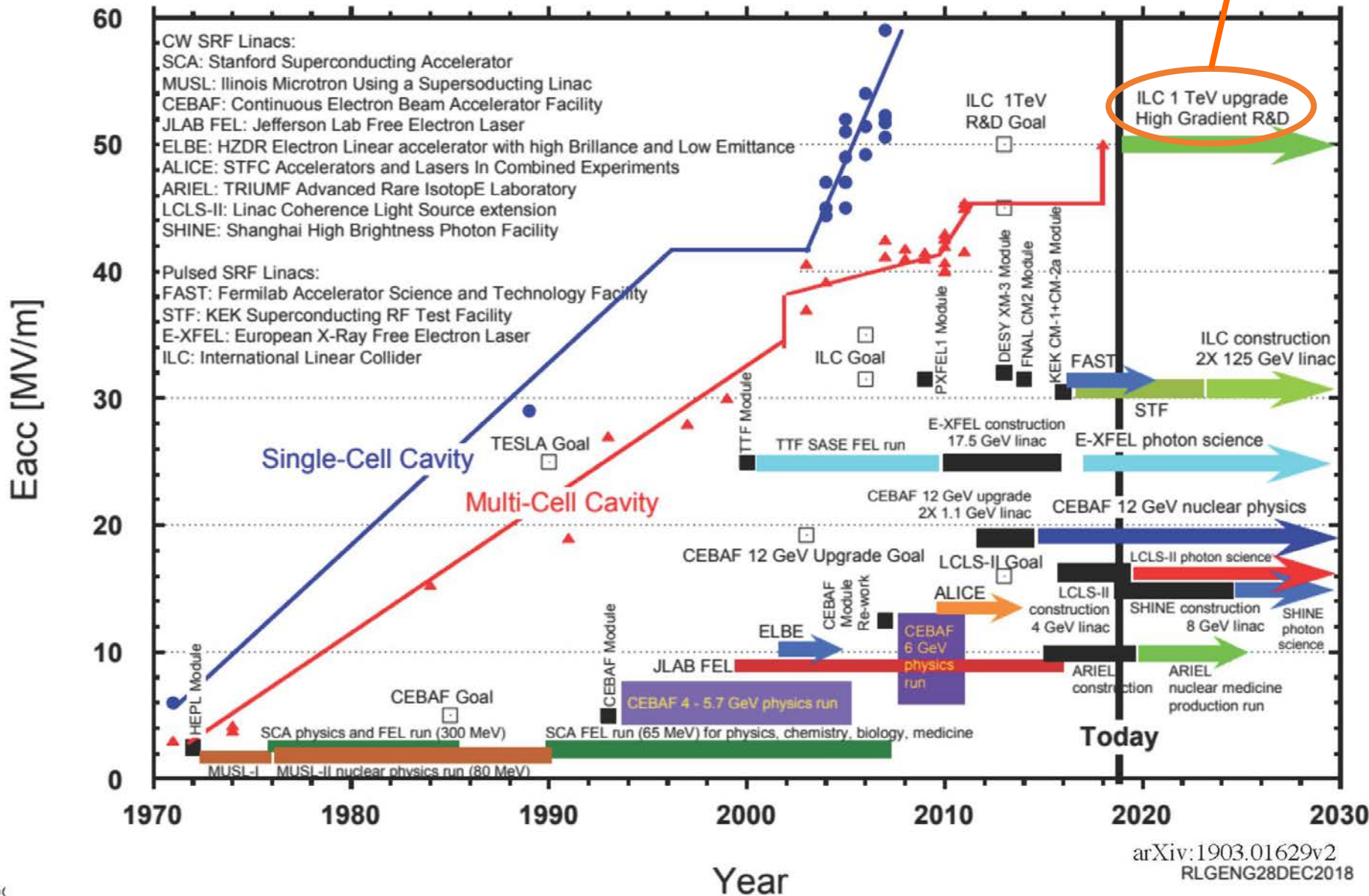
24 MV/m observed in today's best Nb3Sn 1-cell cavity - aiming 80 MV/m as ultimate goal

Taylor

IMPACT ON SRF-BASED FACILITIES

Back in the overall project definition

Energy Future

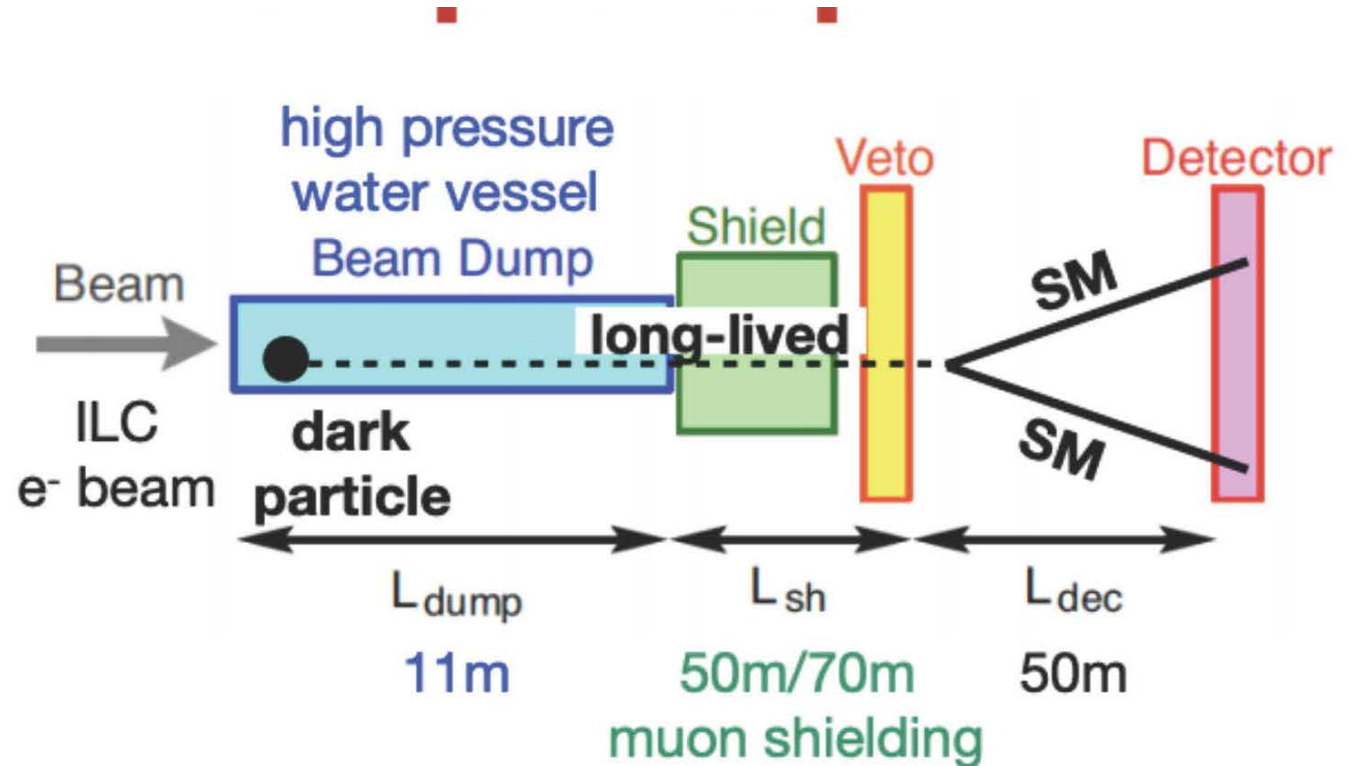


ILC BEAMDUMP INSTRUMENTATION

Starting to be discussed for hidden sector searches



Kanemura, Moroi, Tanabe, 1507.02809



* Much larger energy: 125 GeV, 250 GeV, 500 GeV, 1.5 TeV electron beams compared to past/present e⁻ beam dump experiments:

IDT PHYSICS&DETECTOR ACTIVITIES

*NB: IDT-WG3 final membership not yet public,
currently includes former LCC Physics&Detector WG members*

Lankford

Much recent focus on:

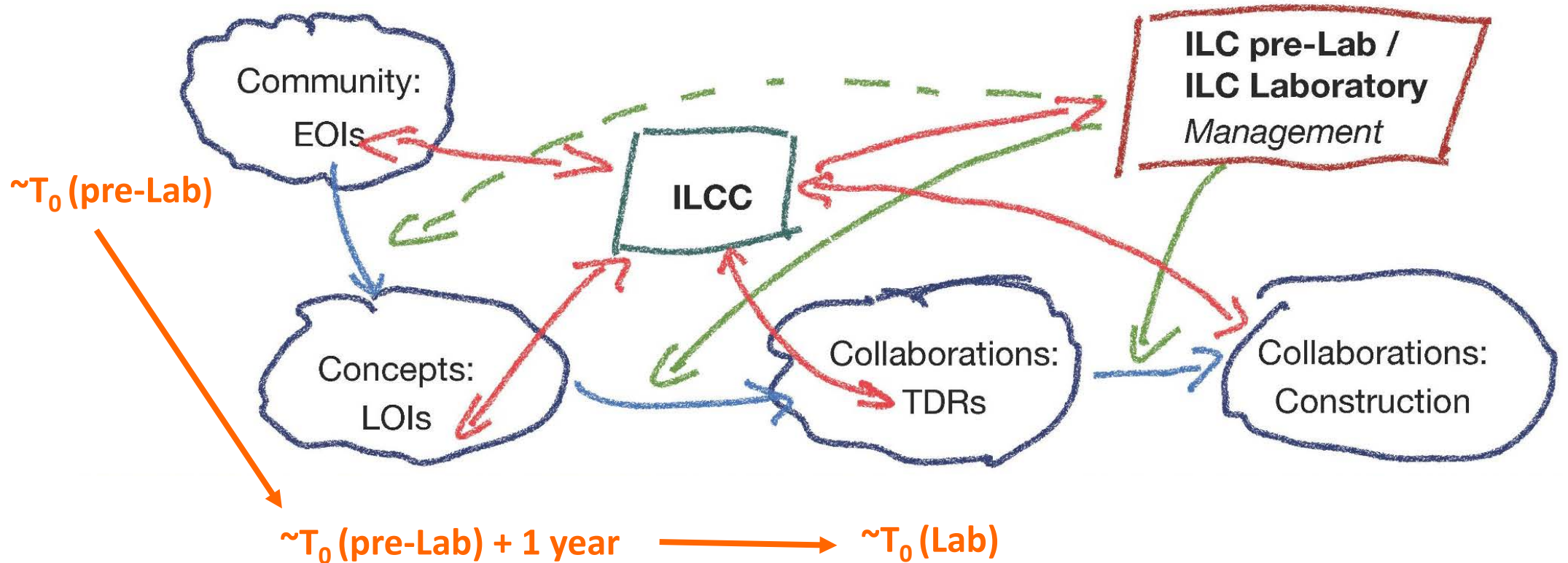
- **Snowmass Community Planning Process**
- **Some needed studies:**
 - **Broader studies in dark sector**
 - **Exotic Higgs decays**
 - **New ideas:**
 - **Experiments with ILC beams other than 4π collider detectors**
 - **e.g.: fixed-target, beam-dump, new detectors near IP**
 - **Future program: Physics capabilities at higher collision energies**
 - **These are all subjects upon which U.S. participation is welcome.**
- **Detector time-line** (R&D, EoI, LoI, TDR, approval, construction, etc.)
 - **Emphasis on what needs to occur during Pre-lab phase**
 - See discussion led by Frank Simon in Thursday plenary.
- **Future workshops**

ILC COMMITTEE ILCC

Expected to handle experiment selection and construction, similar to LHCC

Simon

- Hosted by the ILC pre-Lab / ILC Laboratory; if established prior to pre-Lab initially hosted by KEK



POLITICAL SUPPORT

US (Messages from Department of Energy and Department of State @AWLC2020):

- No conflict of ILC and FCC timelines for US contributions
- Confirm that US contributions to global projects serve a general policy of support to strategic allies

CERN (Steinar Stapnes @AWLC2020):

Involvement existing or possible/investigated in:

- Beam dynamics, beam-delivery, final focus, ATF – including associated instrumentation, magnets, ground-motion
- Damping rings and positrons (conventional)
- HiEff klystrons and couplers
- Beam-dumps
- Cryogenics
- Civil Engineering studies
- Physics/Detector/Software

A new CERN-KEK agreement outlining these common interests for the ILC-IDT is prepared

Reminder: subscription to ILC EU community mailing list ilceurope-general@desy.de
email to sympa@desy.de, with the subject line SUBSCRIBE ilceurope-general [firstname lastname]