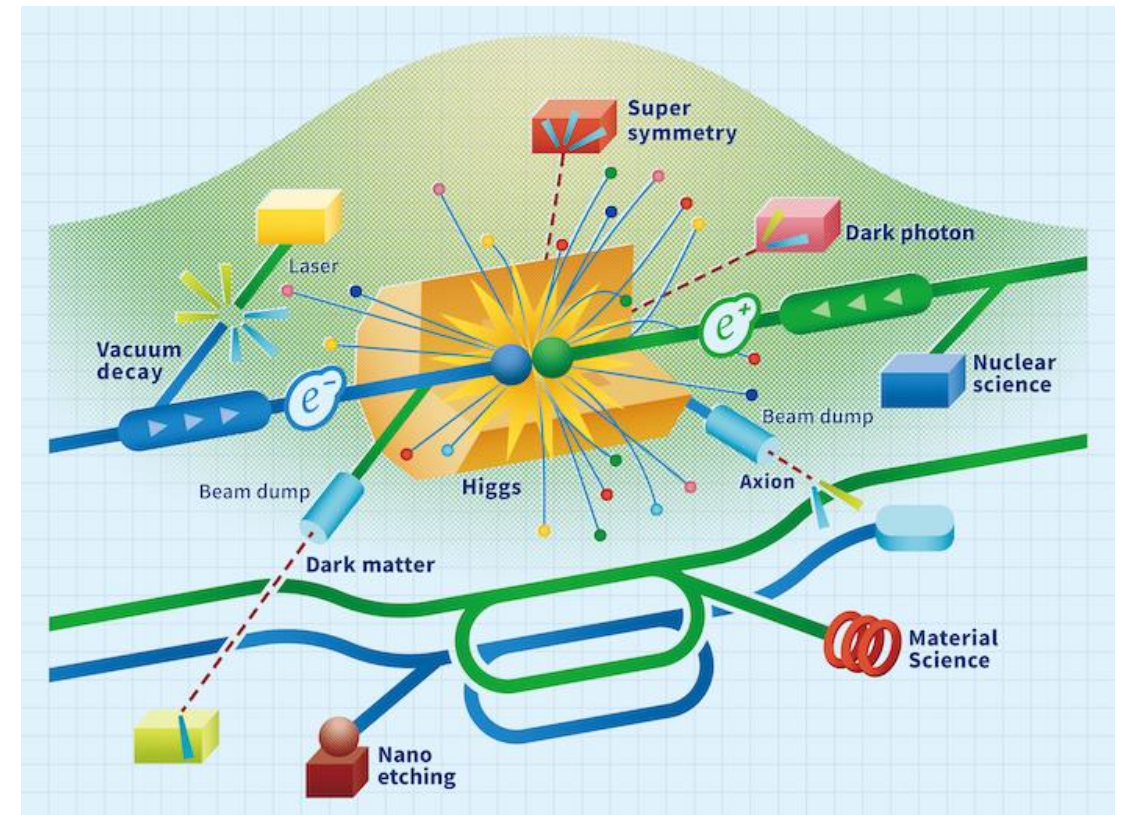


LCVision: Introduction & Goals of the Workshop

LC Vision Community Event
Jan 8, 2025

M. Ishino, J. List, T. Nakada, M. Peskin,
R. Pöschl, A. Robson, S. Stapnes



LCVision

Overview

- LCVision originated from a bottom-up brain-storming in spring 2024
- Leading up to a first public presentation and discussion at LCWS2024, c.f.
 - <https://newsline.linearcollider.org/>
 - <https://agenda.linearcollider.org/event/10134/timetable>
=> decision to develop this further into an EPPSU input
- This week: taking stock here at the LC Vision Community Event
- Staying in touch:
 - sign-up for LCVision e-group:
<http://simba3.web.cern.ch/simba3/SelfSubscription.aspx?groupName=LCVision-General>



LCVision

Objectives

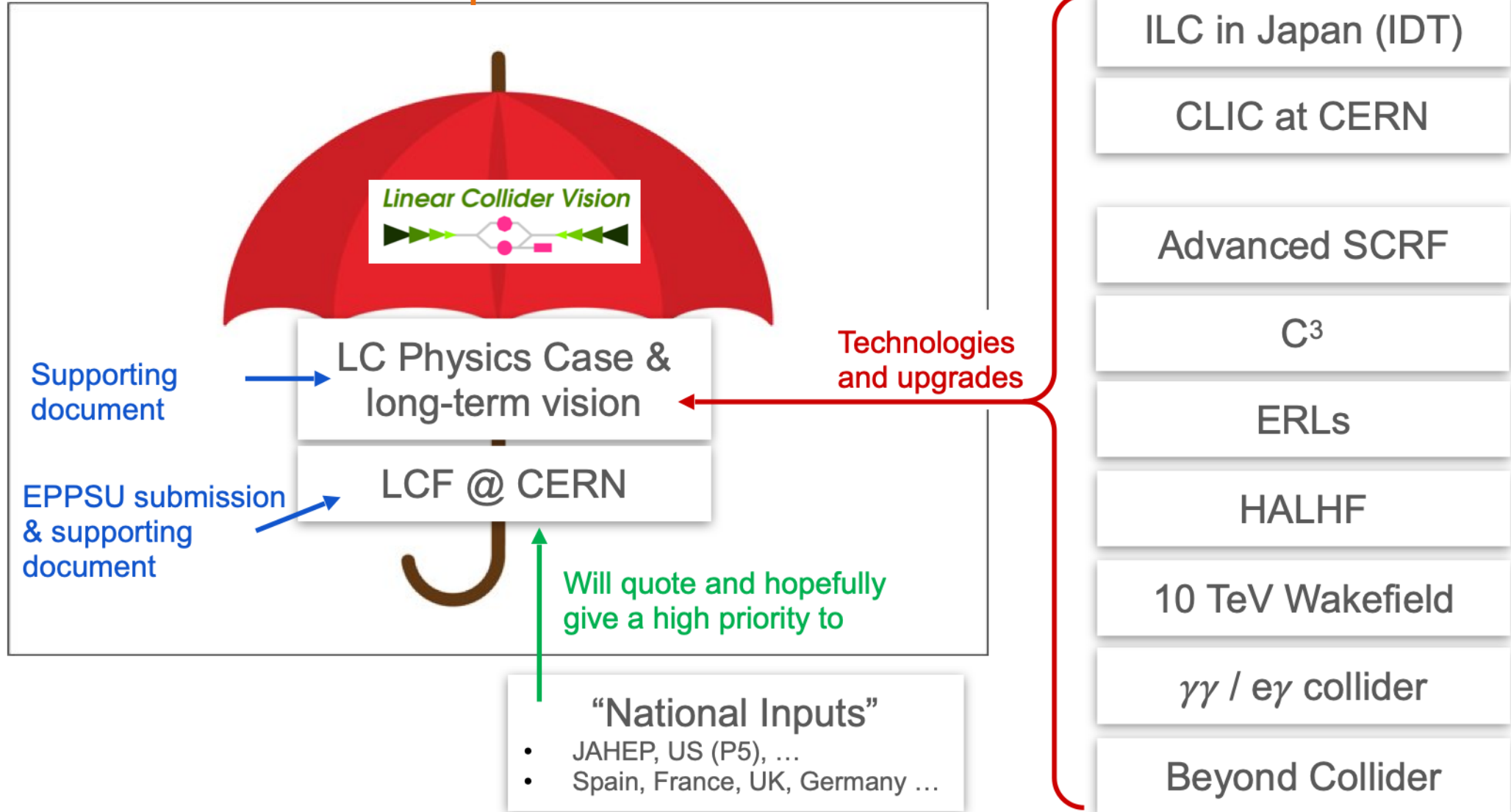
- make a strong case for Linear Colliders in general
 - based on physics arguments
 - capabilities at low energies (90-380GeV)
 - unique added-value at high energies (500GeV ... 1 TeV ... 3 TeV)
 - and attractive upgrade options
 - based on advanced / new technologies rather than tunnel length
 - independently of the exact implementation (acc. technology, site, ...)
- propose a versatile Linear Collider Facility (LCF)
 - suited to host a long-term program, for instance at CERN
 - starting from an affordable and timely realizable baseline
 - building upon all the important R&D done for all the mature LC concepts
 - with scientifically and technologically exciting upgrade options
- aim for broad, joint support across all Linear Collider concepts

Contribute both the generic case and the LCF@CERN to the EPPSU



LC Vision Documents

and their relations to other EPPSU inputs



LCVision

Developments

- Since LCWS 2024:
 - Coordination Group with representatives of LC concepts / technologies, ECRs and national contacts formed
 - Expert Teams working on upgrade options
 - Siting / CFS / costing for CERN under preparation
 - Defined which documents to prepare for EPPSU (actual submission & supporting documents)
- Core Editing Team started weekly meetings from November
- Author Teams for physics part started early December
- Drafts are beginning to appear on overleaf...
- Preparing system for signature collections for EPPSU documents



Chairs: J. List, S. Stapnes

Coordination Group

Halina Abrahmovic, Erik Adli, Ties Behnke, Ivanka Bosovic, Phil Burrows, Marcel Demarteau, Yuanning Gao, Carsten Hensel, Mark Hogan, Masaya Ishino, Daniel Jeans, Imad Laktineh, Andy Lankford, Benno List, Kajari Mazumar, Shin Michizono, Emmanuela Musumeci, Tatsuya Nakada, Mih

Expert Team 1

“Physics-driven run plan
and EPPSU documents”
Roman Poeschl,
Michael Peskin

Expert Team 3

“SCRF upgrades”
Sergey Belomestnykh,
Hiroshi Sakai,
Marc Wenskat

Expert Team 5

“ERL upgrades”
Walid Kaabi,
Vladimir Litvinenko, Kaoru
Yokoya

Expert Team 7

“Beyond Collider”
Stefania Gori,
Yasuhito Sakaki,
Ivo Schulthess

Expert Team 2

“LCF@CERN”
Steinar Stapnes,
Thomas Schörner

Expert Team 4

“C3/CLIC upgrades”
Angeles Faus-Golfe,
Enrico Nanni

Expert Team 6

“Plasma upgrades”
Brian Foster,
Spencer Gessner

Expert Team 8

“Alternative Collider Modes”
Tim Barklow, Gudi Moortgat-
Pick, Ariel Schwartzman



Core Editing Team

Masaya Ishino, Jenny List, Tatsuya Nakada, Michael Peskin, Roman Poeschl, Aidan Robson, Steinar Stapnes

Higgs at 250 GeV

Dirk Zerwas, Caterina Vernieri, Kei Yagyu

EW from Z pole to highest E

Graham Wilson, Adrian Irls, Taikan Suehara

Higgs at high(est) E

Shinya Kanemura, Georg Weiglein, Johannes Braathen, Margarete Muehleitner

Global Interpretations

Junping Tian, Jorge de Blas

Top from threshold to highest E

Marcel Vos, Gauthier Durieux, Ken Mimasu

Direct BSM

Filip Zarnecki, Sabine Kraml, Sven Heinemeyer, Howard Baer, Natsumi Nagata

ttH and VV

Juergen Reuter, Wolfgang Kilian, Jan Strube, Koji Tsumura

Alternative Collider Modes & Beyond-Collider

=> physics covered by respective expert teams

=> more contributors welcome, please get in touch!



This Workshop

Goals

- **Review the current status**
- **A critical item: definition of the “baseline” — between physicists wishes and technical & cost constraints**
- **Collect feed-back from the community**
 - => discussion between talk and dedicated discussion blocks
 - => junior and senior colleagues are encouraged to speak up!
- **Define the next steps until March, for the next ~12 months, and beyond**
- Program overview:
 - Today: Physics
 - Tomorrow:
 - Baseline and upgrade options - generically
 - Physics and Technical Input requested by the ESG
 - Detector Aspects
 - Implementation in Japan
 - Friday:
 - Implementation at CERN: The Linear Collider Facility
 - Next steps

**Enjoy two days of interesting
talks and constructive
discussions!**



Any Questions?