

## Spokespersons' Welcome

Roman Pöschl



CALICE Collaboration Meeting McGill University Montreal/CA – March 2020

- On behalf of the collaboration I would like to thank McGill for hosting us for this meeting
  - Second CALICE Meeting at McGill, first one in 2006
    - <https://www.hep.physics.mcgill.ca/XHEP/ILC/calice/meeting/>
    - **N.B. : The first CALICE Meeting that I have attended**
- The local organisation was ensured by François Corriveau, Avleen Mahon, Christina Nelson
- McGill group is member of CALICE since 2005
  - Activities in digital hadron calorimeter
  - Recently studies with SiPM
  - CALICE Management: Chair of Speakers Bureau
- Thanks to the conveners for having compiled the program
- Thank you very much for coming to this CALICE Meeting



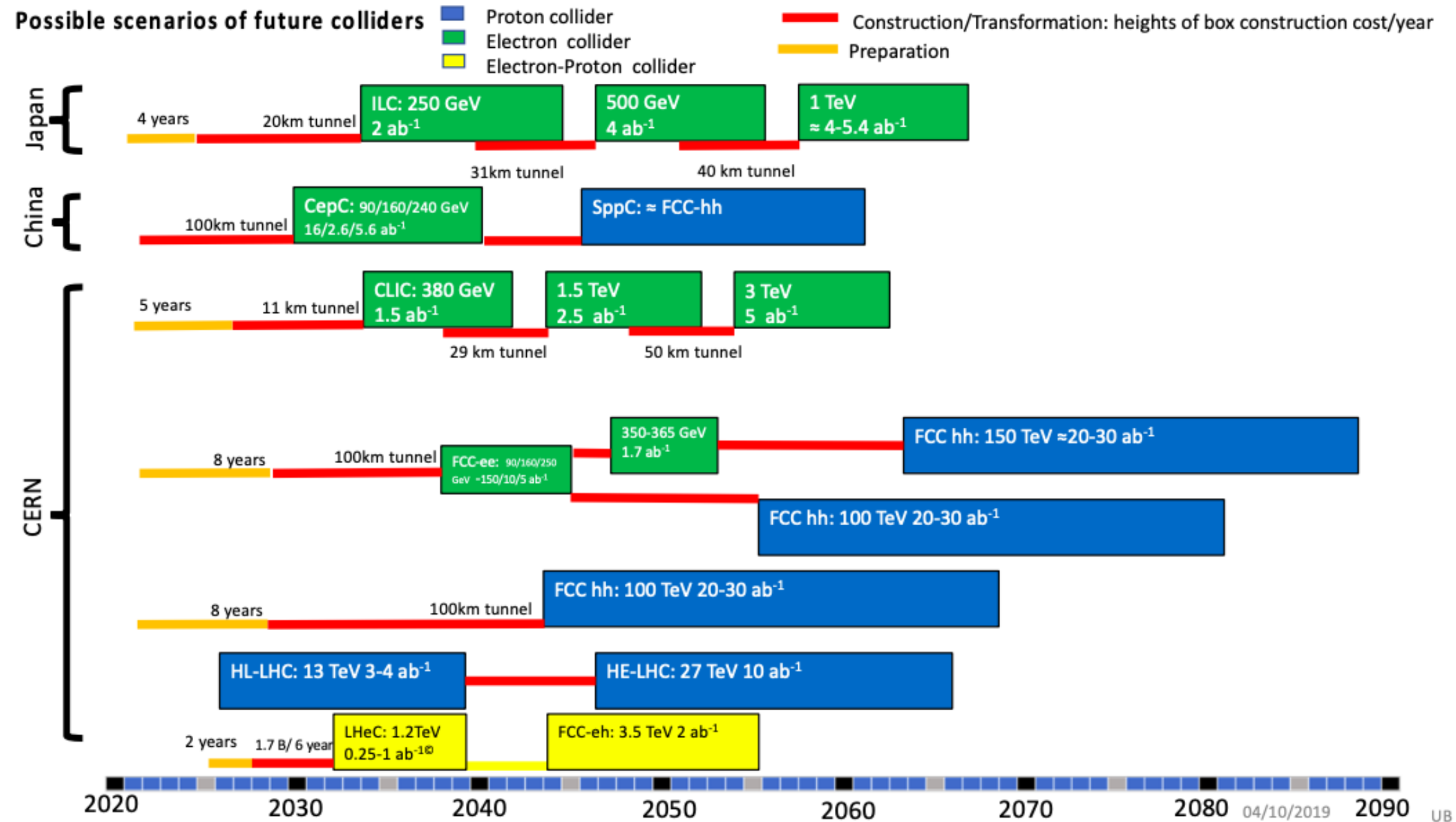


# Meeting at McGill 2006



CALICE Meeting March 2020

# Current/Future Accelerator Projects



Courtesy of U. Bassler



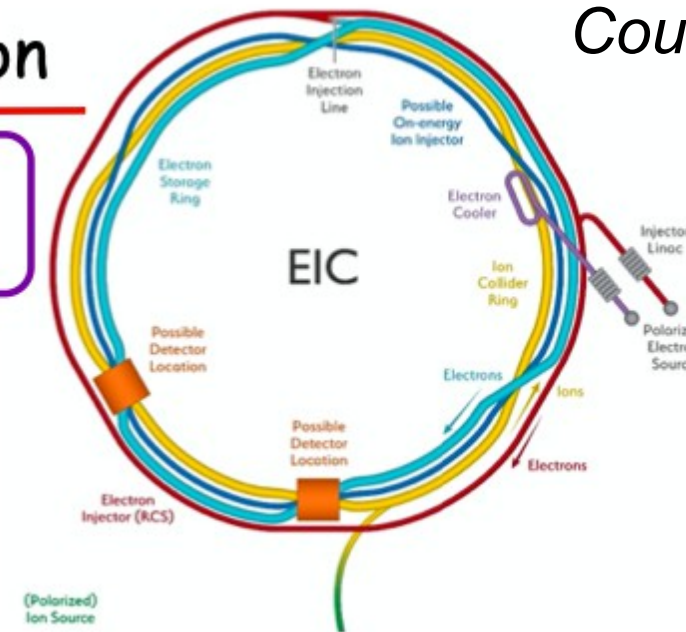
## Electron Ion Collider (EIC): CD-0 and site selection

Courtesy of M.H. Schune

### Outstanding questions in QCD:

- ✓ Saturation: QCD in the non-linear regime
- ✓ Distributions of position, momentum, angular momentum...
- ✓ Role of gluons in the nuclear medium

Golden future facility to study  
QCD at high  $E$ /small  $x$ :  
role of gluons in nuclear matter



On Jan 9 2020 the US Department of Energy announced Critical Decision 0 (Mission Need) for an US-based Electron Ion Collider

- Hereby EIC becomes an official DoE project
- Brookhaven National Laboratory (Upton, NY) is selected to host the new facility

### Tentative timeline

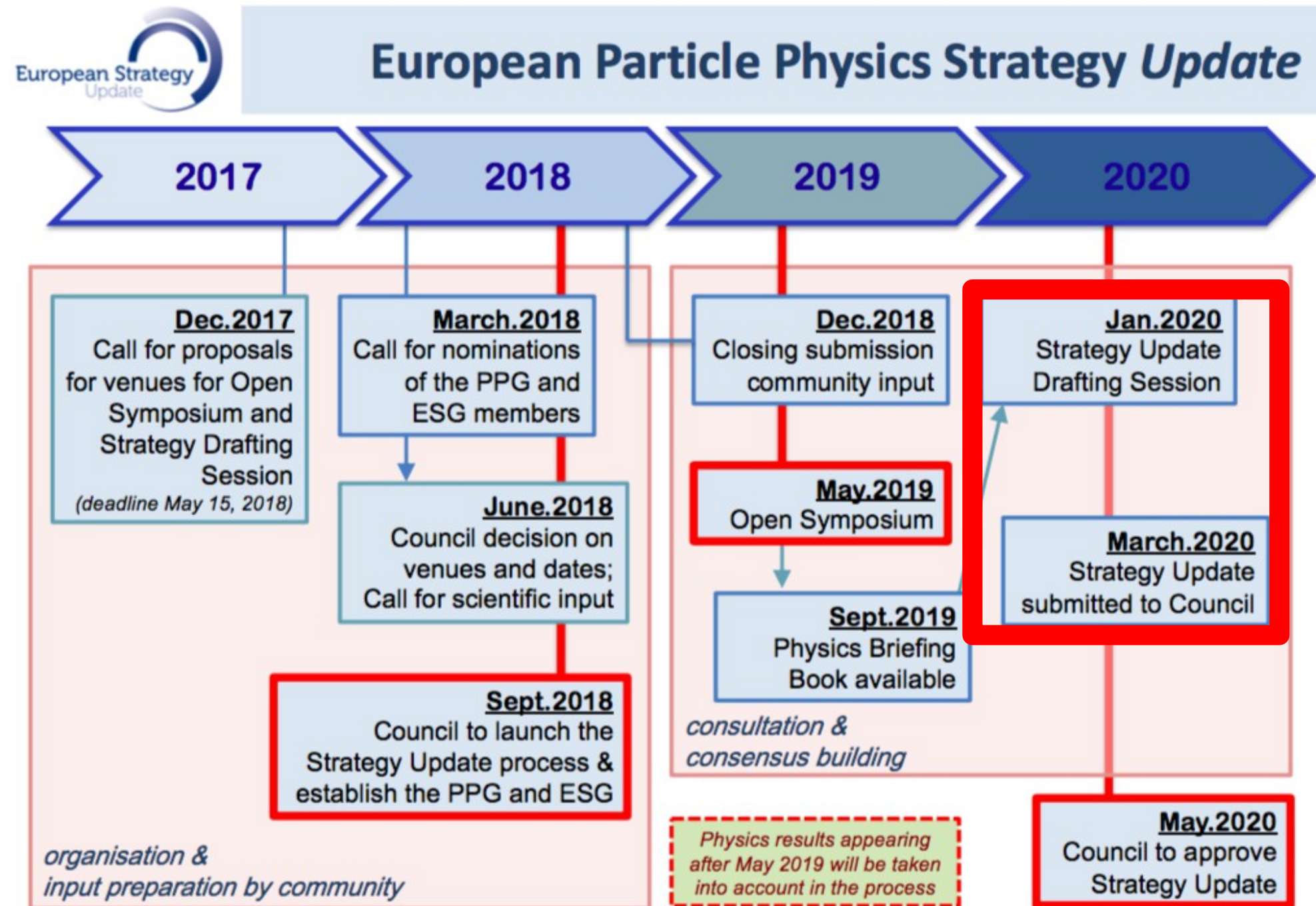
		2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
DOE Driven	CD0	19/12											
	Site selection		9/01										
	CD1												
	CD2/CD3												
	Construction												
	CD4/EIC operations												
Users Driven	Physics/Detector study (yellow report)												
	Call for detectors/collaborations												
	Design of detectors												
	Detector construction												
	Physics												

- I acknowledge as well the approval of the Hyper-K project in Japan

- Meeting 2006: Year of **first** European Strategy of Particle Physics  
<https://indico.cern.ch/event/221548/attachments/360936/502608/ESStatement-2006.pdf>
- Extraction from Strategy document 2006
  - LHC Luminosity Upgrade around 2015
  - Fundamental to complement LHC with a linear  $e^+e^-$  collider
  - Future major facilities ... require collaboration at Global Scale
- Meeting 2020: Year of **third** European Strategy of Particle Physics
  - <https://europeanstrategyupdate.web.cern.ch>
  - See next slides



EPPSU Secretary:  
H. Abramowicz



So, what do we know today ... ?

CALICE Meeting March 2020

## Statement from the European Strategy Group after the Bad Honnef drafting meeting

The drafting session of the European Strategy Group preparing the next European Particle Physics Strategy Update took place in Bad Honnef (Germany) between 21-25 January 2020. After a week of fruitful discussions involving senior figures of European and international particle physics, convergence was achieved on recommendations that will guide the future of the field.

The drafting session marks a key stage of the strategy update process. The attendees of the Bad Honnef drafting session successfully carried out their ambitious task of identifying a set of priorities and recommendations. They built on the impressive progress made since the last update of the European Strategy for Particle Physics, in 2013, and the rich input received from the entire particle physics community in the current update process.

The next step in this process will be to submit the document outlining the recommendations to the CERN Council. It will be discussed by the Council in March and submitted for final approval at an extraordinary Council Session on 25 May, in Budapest, Hungary. Once approved, it can be made public.

The European Strategy Group



## What Does a World View Provide?



- Optimistically: **ILC and CEPC could BOTH be built!**
- ILC can foresee upgrades to both energy and luminosity over time
- CEPC capacities very similar to those of FCC-ee

***Such a scenario can “free” CERN to consider how to pursue its key and unique role at the High Energy Frontier***

JSPS-Master Plan, published on 30/1/20:

<http://www.scj.go.jp/ja/info/kohyo/pdf/kohyo-24-t286-1.pdf> (in Japanese).

- there are 34 projects in physics among 146 projects (all domain) listed in Master Plan 2020.
- there are 16 projects in physics among 59 projects (all domain) which went to hearing by JSPS.
- there are 7 projects in physics among 31 projects (all domain) as listed as prioritised project in Master Plan 2020.

- 1 Strong Magnetic Field - formation of unified next-generation strong magnetic field facility
- 2 KEK Super-B Factory Project
- 3 JPARC: High Intensity Proton Beam (2017 priority Master Plan)
- 4 ALMA 2: Atacama Large Millimeter/submillimeter Array
- 5 KAGRA: Large-scale Cryogenic Gravitational wave Telescope at Kamioka
- 6 SUBARU 2 Telescope at Hawaii
- 7 LiteBIRD: CMB (2017 priority Master Plan, continued)

- ILC went to hearing phase, scientific relevance recognised
- Press conference with Japanese Minsters (MEXT and Science and Technology) with encouraging
- Statements w.r.t. Political support of ILC



International Committee for Future Accelerators  
Sponsored by the Particles and Fields Commission of IUPAP

## ICFA Statement on the ILC Project

February 22, 2020

ICFA was encouraged by the reports from Mr. H. Masuko, Deputy-Director General, MEXT Research Promotion Bureau and Hon. T. Kawamura, Chairperson of the Federation of Diet Members for the ILC, at the ICFA meeting held at the SLAC National Accelerator Laboratory, Stanford, USA, on the 20<sup>th</sup> February 2020.

Based on these reports:

- ICFA reconfirms the international consensus for a Higgs factory and wishes to see the timely construction of the ILC in Japan.
- ICFA acknowledges and welcomes the inter-governmental discussion between Japan, the United States and European nations, to advance international collaborative activities for the ILC.
- ICFA notes the need for a preparatory phase ahead of the establishment of the ILC laboratory and the construction of the ILC in Japan.
- ICFA advocates establishment of an international development team to facilitate transition into the preparatory phase.
  - The development team should be hosted by KEK, with leadership chosen with the help of ICFA.
  - The team would develop a plan for the preparatory phase for the construction of the ILC, including technical, organizational and governance issues. It also would be tasked with understanding the activities and resources required in the preparatory phase. The process of developing the plan should involve the interested laboratories and community.
  - ICFA anticipates that these development activities could be completed in approximately one year, at which point it would be possible to launch the preparatory phase for the ILC, provided Japan expresses intent to do so together with international partners.
- In view of progress towards realisation of the ILC in Japan, ICFA encourages the interested members of the high energy physics community, laboratories, and nations, to support and participate in these preparations aimed at the successful establishment of the ILC.

Menlo Park, CA, USA

- ICFA/LCB Meeting at SLAC 21-22/2/20
- Encouraging reports by
  - H. Masuko
    - Deputy-Director General,
    - MEXT Research Promotion Bureau
  - Hon. T. Kawamura
    - Chair FDMILC
- ICFA encourages transition to preparatory phase
- More details in talk by Andy on Thursday



**The Division of Particles and Fields of the American Physical Society announces the Frontier Conveners of the next HEP Community Planning Exercise (a.k.a. Snowmass) and the site and dates of the 2021 Snowmass Summer Study.**

The Snowmass Community Planning Process is organized by the Division of Particles and Fields of the APS. In order to coordinate efforts across divisions, a steering committee, consisting of the DPF executive committee with representatives from DAP, DPB, DNP, and DGRAV, meets regularly. Snowmass is an opportunity for the entire HEP community to come together to identify and document a vision for the future of particle physics in the U.S. and with its international partners. Workshops will be organized over the next year and a half, culminating in a 2021 summer study that pulls all the work together. Snowmass provides input to HEPAP through its prioritization panel, P5, ultimately producing advice on future projects and scientific programs to the agencies under a set of funding scenarios.

**Dates and Site for the Summer Study:** The dates for the summer study are July 11 -20, 2021. This workshop will take place at the University of Washington, Seattle. The local organizing committee will be co-chaired by Shih-Chieh Hsu and Gordon Watts. It will be modeled after the successful Snowmass 2013.

**Conveners of Frontiers:** We appreciate your strong participation in the Frontier convener nomination process. The selected Frontier conveners are listed below. Over the next three months, they will be meeting together with the Snowmass Steering Committee to determine the next steps. Their main task before the APS April meeting is for the conveners to revise the initially proposed topics and select topical sub-conveners within their frontiers. All frontiers have 3 co-conveners, except for Community Involvement, which will follow a different model of engagement due to the very broad range of topics under its umbrella. All sub-conveners need to be approved by the Steering Committee and their choice should be guided by, but not strictly limited to, the names included in the spreadsheet of nominations which was collected from the community during the original convener nomination process.

**Summer study:**  
**11/7/21 – 20/7/21**

- More details: <https://www.aps.org/units/dpf/snowmass-2021.cfm>
- Would be of course good if CALICE would play a role in this process

- Granada meeting saw one dedicated track on instrumentation and computing
  - F. Sefkow and L. Linssen among convenors
- (Excerpt from) concluding remarks Brigitte Vachon
- Current R&D collaborations (eg. RDx, AIDA2020, CALICE, etc.) seen to be effective models of collaboration.
  - Conduit to facilitate constructive exchange of information/expertise
  - Effective framework to share resources.
  - Coordinate work to limit duplication of efforts
  - Support wide dissemination and growth of knowledge
  - Excellent training environment
  - Provide door to industry relations
- CALICE should build up on this encouraging statement that hopefully will be reflected in the Update of the European and other strategies
  - Will facilitate the quest for funding





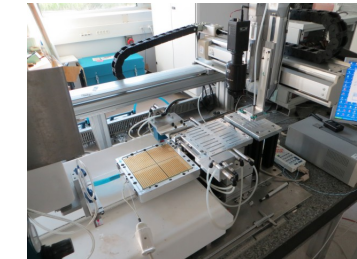
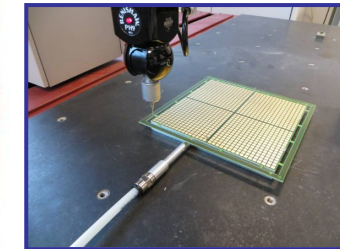
Scientific secretary:  
F. Sefkow

## CALICE Related results in Calorimetry workpackage

### Cosmic and tile teststands



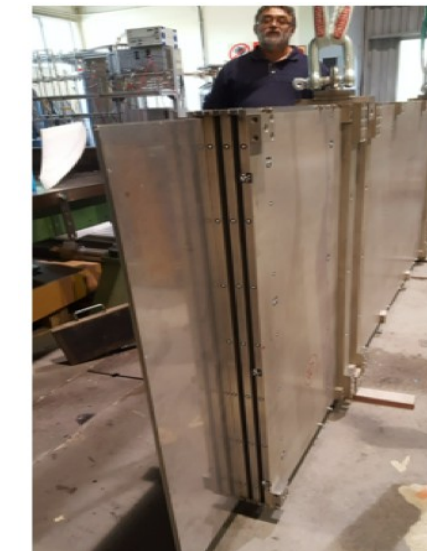
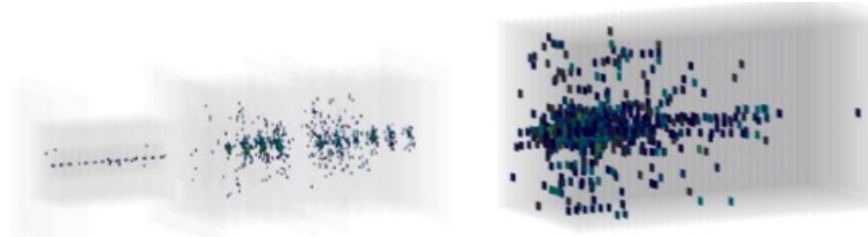
### Detector assembly tools



### Compact r/o

### Electron beam welding

### Common beam tests



### Cooling system(s)

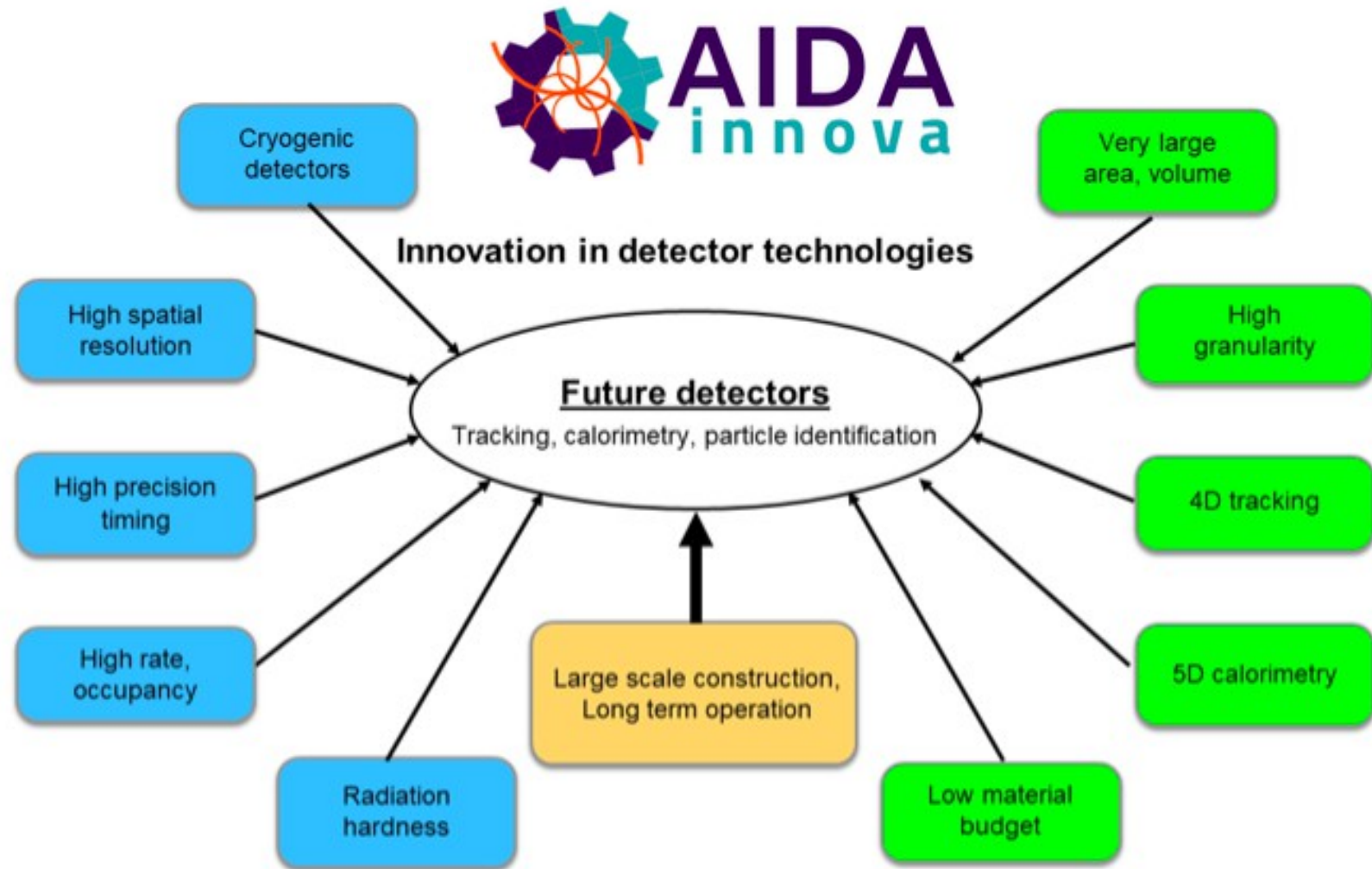


Note also results in:

- Electronics workpackage
- DAQ workpackage
- Software workpackage
- CALICE benefited from updates of beam test sites including TA



- ***The information is based on the Work Programme for 2018-2020, 2.July 2019***
  - The actual Call for the Innovation Pilots has been published in November
- Topic: **Innovation for Detector Technologies for Accelerators**
- Expected EC funding: **up to 10 M€** , Proposal **Deadline March 17, 2020**
- Objective:
- Support **research infrastructure networks** developing and implementing a **common strategy**/roadmap including technological development required for **improving their services** through **partnership with industry**;
- Support **incremental innovation** and **cooperation with industry and academia** in areas such as scientific instrumentation
- Target : **Advanced Integrated Activities (i.e. the AIDA-2020 community)**, which have reached a high level of integration and can **focus on joint research developments**, here instrumentation for particle physics at accelerators



CALICE activities present in:

- Workpackage on Calorimetry and particle ID
  - Conveners: K. Krüger, R. Ferrari, R.P.
- Workpackage on gaseous detectors
- CALICE will benefit from developments in
  - Electronics workpackage
  - Software workpackage

Proposal coordinator: F. Sefkow

**To be clear the proposal has still to be submitted and then to be approved**

- **CALICE at Conferences and R&D Meetings**
  - CERN ep day in Oct. 2019
  - IEEE 2019 at Manchester
  - LCWS2019 at Sendai
  - CEPC Workshop Nov. 2019
  - CHEF2019 at Kyushu
  - FCC week in Jan. 2020
  - IAS Conference in Hong Kong
- **“CALICE Hardware” (see talks at this meeting)**
  - Two FOCAL beam tests at
  - Lessons from 2018/19 beam tests
  - Preparation of 2020 (2021) beam tests
- **Attempt to reanimate the analysis meetings**
  - Cancelled due to lack of speakers
  - Have to understand why this happened
  - Of course student and postdoc situation is always volatile but  
Analysis sessions at recent meetings were well attended



- 21 registered participants (compared with 35 in 2006)
  - Looks low but
    - Conflict with other (partially) unforeseen events
    - The Coronavirus impacts also the CALICE Meeting (Colleagues from China are blocked at home)
    - It's true that CALICE is a bit hibernating in North-America
      - The more important it is that this meeting happens here
    - However still delegates from 14 institutes from 9 countries
- Important elections are ahead of us
  - At the end of this meeting we will know the new IB Chair (successor of Imad)
    - A big applause already now to Imad for his great service
  - Transition from Steering Board to IB
  - We are heading for the election of the new TB Chair (successor of Katja)
    - A big applause already now to Katja for his great service
  - Next generation prototypes are reaching maturity and regular slots at beam tests including great support where needed!
- Montreal 2006 was the starting gun for a long and successful series of common beam tests (2006-2012)
  - Montreal 2020 can play the same role
- We will have contributions in “Other Applications” that may help to stop the hibernation in NA

- Way towards future project(s) will (hopefully) become clearer in 2020
  - European strategy
  - Developments in Japan
  - Start of Snowmass project
  - China is heading towards CEPC decision in 2022
- Still, expect no decision on a or approval of a project whatsoever in 2020
  - Will have to find the compromise between concrete developments (engineering) and R&D
  - Openness remains the keyword
  - Where can CALICE be useful 'apart from collider experiments (DUNE, LUXE, ... , your input here)
- Individual technological prototypes are (getting) mature
  - Hcals more advanced than Ecals that are however gearing up
  - Time to think about common beam tests > 2020 !?
  - CERN reopens in May 2021, have to make use of DESY beam in 2020 for preparation
- Personal remark: May need at one point a critical review on what CALICE can do on timing
  - ... including of course what is already there
  - CALICE is operating at ~1ns second level, however field is heading towards 50ps level (and better)
  - Requires in first place integration on recent ASIC and readout development, understanding of sensors
  - .... not trivial in times of scarce funding

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I wish us all a great CALICE Meeting here at McGill



Backup