ilc newsline

DIRECTOR'S CORNER

Decision to host: the ILC chicken or egg story

by Tatsuya Nakada

While cooperation in technology is advancing with CERN joining the ILC Technology Network, and the ILC being generally ready to start further development work, there's a lack of progress on political aspects like international discussions at a governmental level, the International Committee for Future Accelerators learnt at the recent meeting in Australia. IDT Chair Tatsuya Nakada reports on the ILC aspects.

AROUND THE WORLD

KEK and CERN conclude agreement on R&D for ILC

On 7 July, KEK and CERN signed an agreement to support the development of the ILC Technology Network(ITN). This new framework of R&D will focus on ITN-specific technology developments and studies in Europe, with CERN acting as a coordinating and facilitating hub.

AROUND THE WORLD

Shoji Asai selected as next Director General at KEK

On September 8, KEK announced that Shoji Asai, Director of the International Center for Elementary Particle Physics (ICEPP) at the University of Tokyo, was selected as the candidate for the next Director General. His term starts on 1 April 2024.

IN THE NEWS

from *Iwate Nippo*
6 September 2023
着工「30年までに必要」　国際会議LCWSが声明
国際リニアコライダー（ＩＬＣ）計画をテーマとする国際会議「ＬＣＷＳ」は建設時期について「２０３０年までに着手が必要」との内容を盛り込む声明を出した。世界の研究者コミュニティーはこれまで「２５年ごろの着工」を目指してきたが、世界の情勢を踏まえて事実上、軌道修正する方向となった。

from *Sankei*
5 September 2023
大型加速器「国際リニアコライダー」２０３０年建設開始が目標　日本誘致目指す
宇宙誕生の謎を探る次世代の大型加速器「国際リニアコライダー（ＩＬＣ）」の日本誘致に向け、国際科学者チームが、今後７年ほどで準備を終え、２０３０年ごろの建設開始を目標とする計画表をまとめたことが５日分かった。ＩＬＣ建設への具体的なスケジュールが示されたのは初めて。

from *Tech Times*
2 September 2023
China Plans to Build $618 Million Super Particle Collider to Advance Particle Physics
China is set to venture into the complex world of particle physics with the construction of the Super Tau-Charm Facility (STCF), a groundbreaking particle collider that will delve deep into the mysteries of the universe.

from *Saitama Shimbun*
5 September 2023
加速器、３０年には建設開始
宇宙誕生の謎を探る次世代の大型加速器「国際リニアコライダー（ＩＬＣ）」の日本誘致に向け、国際科学者チームが、今後７年ほどで準備を終え、２０３０年ごろの建設開始を目標とする計画表をまとめたことが５日分かった。ＩＬＣ建設への具体的なスケジュールが示されたのは初めて。

from *City Life*
2 September 2023
China Plans to Build New Particle Collider to Test Standard Model
Scientists in China are embarking on a project to construct a new particle collider, the Super Tau-Charm Facility (STCF), with the aim of testing the Standard Model of particle physics in greater detail.

from *Japan Today*
2 September 2023
Tohoku University first candidate for huge Japan gov't research grants
Tohoku University has been selected as the first candidate for substantial government research grants aimed at elevating Japanese research institutes to the top of the global rankings, the education ministry said Friday.

from *CERN Courier*
1 September 2023
Aligning future colliders at SLAC
A linear collider is appealing because it could operate as a Higgs factory during its initial stage, while maintaining a clear path for future energy upgrades. Proposed linear-collider Higgs factories are designed for greater compactness, energy efficiency and sustainability, with lowered construction and operation costs compared to circular machines.

from *Iwate Nippo*
31 August 2023
ILCの関連予算10.5億円要求　文部科学省2024年度
文部科学省は３０日、２０２４年度予算の概算要求を発表した。本県の北上山地（北上高地）が候補地となっている国際リニアコライダー（ＩＬＣ）関連は、２３年度当初予算から８千万円増の１０億５千万円を計上した。

from *Scientific American*
28 August 2023
Particle Physicists Dream of a Muon Collider
After years spent languishing in obscurity, proposals for a muon collider are regaining momentum among particle physicists

from *Iwate Nippo*
25 August 2023
ILC関連予算10.5億円要求へ　24年度に加速器の性能向上図る
文部科学省は２０２４年度予算の概算要求案で、国際リニアコライダー（ＩＬＣ）に関連し、２３年度当初予算から８千万円増の１０億５千万円を盛り込む方向で調整している。

from *Kahoku Shimpo*
24 August 2023
ILC建設候補地10年　政府の本気度は？中国の動向は？先行き見えず、気をもむ地元
超大型加速器「国際リニアコライダー（ＩＬＣ）」の誘致を目指す日本の研究者組織が、岩手、宮城両県にまたがる北上山地を建設候補地と発表してから２３日で１０年となった。

from ***NHK***
10 August 2023
次世代大型実験施設ＩＬＣ誘致 奥州市で会合 効果など報告
岩手と宮城にまたがる「北上山地」が候補地になっている次世代の大型実験施設、ＩＬＣ＝国際リニアコライダーの誘致を進める自治体などの関係者による会合が奥州市で開かれ誘致が実現した際に地元で期待される効果などが報告されました。

from ***Iwate Nippo***
23 July 2023
押井守氏「日本人変わる契機に」　ILC考、各界著名人に聞く
国際リニアコライダー（ＩＬＣ）は人類の未来を変える可能性のある研究施設だ。文化的に中立で、資本主義国で、先進７カ国（Ｇ７）の中でも核武装していない日本は良い立ち位置。やる意義は大きい。

from ***Iwate Nippo***
19 July 2023
KEKとCERN、ILC技術開発推進へ新組織　国際協力拡大目指す
国際リニアコライダー（ＩＬＣ）の技術開発を推進する新たな組織「ＩＬＣテクノロジーネットワーク」が発足した。高エネルギー加速器研究機構（ＫＥＫ、茨城県つくば市）と欧州合同原子核研究所（ＣＥＲＮ、スイス）の２者で始動。今後、欧米の研究機関を巻き込んで取り組みを加速させ、計画実現に必要なレベルへさらに熟度を高める。

PREPRINTS

ARXIV PREPRINTS

2309.02153
R&D for Positron Sources at High-Energy Lepton Colliders

2309.00668
Status Report on the Hydrodynamic Simulations of a Tapered Plasma Lens for Optical Matching at the ILC e+ Source

2308.15916
Target tests for the ILC positron source Talk presented at the International Workshop on Future Linear Colliders (LCWS2023)

2308.15500
Plasma Lens Prototype Progress: Plasma Diagnostics And Particle Tracking For ILC e+ Source

2307.15651
Prospects for light Higgs measurements at the 250 GeV ILC

2308.09676
Using the GP2X framework for center-of-mass energy precision studies at e+e− Higgs factories

2308.06558
Testing Z boson rare decays $Z \to H1\gamma, A1\gamma$ with $(g-2)\mu$, δMW, and $BR(hSM \to Z\gamma)$ in the NMSSM

2308.00117
Probing non-perturbative QED and new physics with a LUXE-type experiment at the ILC

2307.16515
Higgs self-coupling measurement at the International Linear Collider

2307.16514
Measurement of the CPV Higgs mixing angle in ZZ-fusion at 1 TeV ILC

2307.15537
Tuning Pythia8 for future e+e− colliders

2307.14888
Experimental prospects for precision observables in $e^-e^+ \to q\bar{q}$ with q=b,c processes at the ILC operating at 250 and 500 GeV of center of mass

2307.09737
Probing for chiral Z' gauge boson through scattering measurement experiments

2307.01086
A collider test of nano-Hertz gravitational waves from pulsar timing arrays

2306.15480
The $\gamma h/\gamma\varphi$ production via $\gamma^*\gamma^*$ collisions at the ILC and LHC

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DIRECTOR'S CORNER

Decision to host: the ILC chicken or egg story

Tatsuya Nakada | 29 September 2023

As an organisation set up by the International Committees for Future Accelerator (ICFA), the International Development Team (IDT) makes a regular status report at the ICFA meeting, taking place twice a year. The last report was given at the ICFA meeting in Melbourne, Australia, on 17 July. The meeting was held at the University of Melbourne in hybrid mode. The IDT laid the focus of the report on the ILC Technology Network (ITN), which was jointly launched by KEK and IDT, and the International Expert Committee (IEP), a subcommittee of IDT. It also mentioned the IDT's role in facilitating the community activities in physics and detectors for the ILC as well as for Higgs factories in general.

For the ILC Technology Network (ITN), the outline of the framework document endorsed by the KEK Board of Directors was presented. The network is based on agreements between KEK and laboratories worldwide, and has a role as an independent body to execute technical development identified as time critical by the IDT Working Group 2. ICFA also learned that CERN and KEK recently signed an agreement for the participation of CERN to ITN. CERN is the first laboratory to join ITN and is expected to play a coordination role for the European ITN activities facilitating the exchange of resources between KEK and participating laboratories in Europe.

The International Expert Panel (IEP) presented its analysis on the current situation of the ILC project implementation. While the Technical Design Report was completed and ILC is ready to start development work to prepare for engineering studies on the technical side, the proposal of the Japanese High Energy Physics community to host ILC in Japan as a global project has made less progress. International partners have been waiting for the Japanese government to express its interest to host ILC and invite them for discussion to join the project. The Japanese government, on the other hand, considers it premature to make such a move. One of the reasons for this is not having a clear prospect for international contribution. The panel concludes that it is the lack of discussion among government authorities on how to proceed toward the realisation of the ILC, in parallel with the technical work, that caused this situation: i.e., the Japanese government considers ILC as a global project where all the decisions, including for the host and site, should be made through discussion among the partner countries, while the foreign partners think that Japan needs to move first. To make progress, the concept of ILC as a global project should be commonly understood, the panel says. At the same time, it must be acknowledged that a leadership role is also required, even for a global project. The panel reports that would seek ways to address those points with the relevant bodies.

It is worth noting that a global project requires global coordination, where ICFA should continue to play an important initiating role.

ICFA | IDT | ITN