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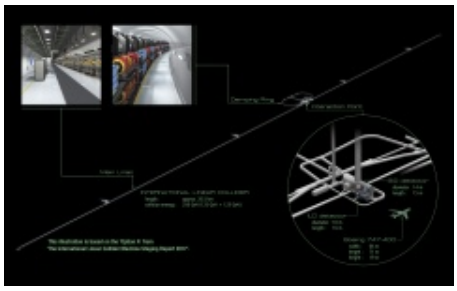
DIRECTOR'S CORNER

New tasks for the International Development Team

by Tatsuya Nakada



If things had gone according to plan, the ILC would now be in its Pre-lab phase and the mandate for the International Development Team (IDT) concluded. But situation changes and plans need to be adjusted. Over the next year, IDT will strengthen efforts for advances in technology and preparation through a new network of laboratories around the world. Additionally, a newly formed group of experts will discuss intensively how a truly global accelerator project should be realised and seek a dialog with government authorities.

AROUND THE WORLD

U.S. Particle Physicists Meet in Seattle for the Snowmass Community Summer Study

by Andy Lankford

With 700 in-person attendees, the U.S. particle physics community discussed science questions and opportunities for its future at the University of Washington in Seattle during its Snowmass Community Summer Study. As the priority for the intermediate term, the vision for the future of the Energy Frontier calls for the fastest path towards a “Higgs factory” as a global partnership, and discussion recognized the ILC as the most technically-ready future Higgs factory candidate.

IMAGE OF THE WEEK

Photos from Snowmass

The workshop pictures that used to be the norm are finally back! With 700 attendees, the lively face-to-face discussion returned to the community. Here are some photos from Snowmass Workshop by Keita Yumino, KEK.

IN THE NEWS

from *Iwate Nippo*
27 July 2022
日本のILC対応、世界が注視　スイスで本紙取材
ILC計画は、日本政府による国内誘致の検討作業が年数を経ても前進せず、実現に向けた関係国の意欲低下が危惧されている。計画を長年推進する素粒子物理学界の重鎮、リン・エバンス氏と建設準備に当たっている国際推進チーム議長の中田達也氏に世界の現状や課題意識を聞いた。

from *Iwate Nippo*
22 July 2022
世界「いらだち極まった」　ILC計画を推進するエバンス氏
ILC計画を長年推進する素粒子物理学界の重鎮、リン・エバンス氏は――「私たちは今でもＩＬＣを日本で造りたい」と述べる一方「フラストレーション（いらだち）のレベルは１００％に上がり、世界のムードは変わってきた。向こう１年で政治的進展がなければ、日本での計画はなくなるかもしれない」と言及した。

from *Iwate Nippo*
20 July 2022
日本の23年度予算、注視　国際推進チーム・中田議長に聞く
ILC計画をけん引する国際推進チームの中田達也議長は１８日、岩手日報社のインタビューに答えた。「日本が誘致を望む限り、きちんと支援する」と述べる一方「２０２３年度予算で次世代加速器の研究開発にお金が付かなかった場合、（世界の）議論はかなりシビアになる」との見方を示した。

from *Denki Shimbun*
15 July 2022
増子新代表「誘致実現を」／東北ＩＬＣ推進協議会、仙台で総会
東北ＩＬＣ推進協議会は８日、仙台市で２０２２年度総会を開いた。国際協力によって開発する次世代加速器の国際リニアコライダー（ＩＬＣ）について、東北誘致に向けた政府への要望活動や地域の意識啓発を柱とする２２年度事業計画を決定。

PREPRINTS

ARXIV PREPRINTS

2207.01763
Inclusive J/ψ photoproduction at the ILC within the framework of non-relativistic QCD

2207.06291
Description and stability of a RPC-based calorimeter in electromagnetic and hadronic shower environments

2207.00780
A novel technique for the measurement of the avalanche fluctuations of a GEM stack using a gating foil

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DIRECTOR'S CORNER

New tasks for the International Development Team

Tatsuya Nakada | 17 August 2022

After its creation in August 2020 by the International Committee for Future Accelerators (ICFA), the ILC International Development Team (IDT) produced a proposal for the ILC Preparatory Laboratory (Pre-lab), organised the ILC Workshop on Potential Experiments and has been holding regular meetings of the working groups for the accelerator, and physics and detector.

In the meantime, the Japanese Ministry of Education, Culture, Sports, Science and Technology (MEXT) have expressed its position that it could not support the Pre-lab without having a prospect for the international contribution to the funding of the ILC itself. A recently released report by the MEXT Advisory Panel for the ILC also concluded that proceeding towards the Pre-lab would be premature given the status of the ILC project and the cost required. On the other hand, the MEXT Advisory Panel recommended to continue R&D efforts on the accelerator and to revisit the roadmap of the ILC in the international context by taking the worldwide progress of the field into account.

In the most recent ICFA meeting in March 2022, after extensive review of the situation, it was decided that *"ICFA commits to continuing efforts within the International Development Team (IDT) over the next year to coordinate the global research community's activities toward further developing and realizing the ILC in Japan"* . With this statement, the IDT's work has entered a new phase, with two major tasks:

The first task is setting up an "ILC Technology Network" to further advance ILC-related technology in selected areas towards engineering design and also for exploration of opportunities for other accelerator applications. The work programme was developed by IDT Working Group 2 based on the work packages described in the Pre-lab Proposal, focusing on technically critical items and time-consuming developments. The Network will be built upon collaboration agreements between KEK and interested laboratories worldwide. For this purpose, KEK is requesting a substantial increase of funding from MEXT starting in the Japanese Fiscal Year 2023 which will start in April. The IDT is now helping to set up the collaboration agreements by matching the deliverables of the work programme with the interests and expertise of laboratories worldwide. While the actual work will be executed in the framework of the collaboration agreements, the IDT will provide central coordination of the Network.

The second task is to help advance international discussion. The IDT finds that the lack of progress in achieving a prospect for international contribution to the ILC project is primarily due to differences among the potential partners in understanding on how a global project should proceed. It is worth noting that no large accelerator infrastructure built to date was a global project; that the ILC is the first one to aim to be a global project from the beginning. To address these different understandings, the IDT has formed an International Expert Panel composed of senior physicists from the worldwide particle physics community who have close connections to both government authorities and the community. As its first step, the Panel will discuss a complete process for a global accelerator project, applicable to the ILC and possibly to other future global accelerator infrastructure projects, and the Panel will share its conclusion with government authorities through extended meetings. Once a common understanding is reached on the process for establishing a global accelerator project, the Panel will proceed to discussion of adapting the process to the ILC. The IDT hopes that constructive intergovernmental discussion of the ILC will be triggered through this work.

In addition, the work on ILC physics and detectors will continue to be supported through Working Group 3 by facilitating collaboration of laboratory and university groups sharing common interests. ICFA expects clear progress on the two tasks by spring next year and together with ILC-Japan and KEK, the IDT and the international community need to strive for carrying out this mission. There will be, yet again, another busy and exciting year ahead of us.

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AROUND THE WORLD

U.S. Particle Physicists Meet in Seattle for the Snowmass Community Summer Study

Andy Lankford |

Participants for the the Seattle Community Summer Study Workshop onsite and online

The U.S. particle physics community, along with colleagues from many other nations, met last month at the University of Washington in Seattle for its *Snowmass* Community Summer Study. At this very well-attended ten-day hybrid workshop, with seven hundred in-person attendees, the community discussed science questions and opportunities for its future. The full, broad scope of U.S. particle physics was explored, from experiments at colliders, to experiments in intense particle and neutrino beams, to experiments underground and observatories on mountain tops. Particle theory, accelerators, detectors, and computing were also discussed, as was community engagement. This workshop was the culmination of a study and discussion process that started in 2020 and that was prolonged for a year by the pandemic.

A community vision for the future of the Energy Frontier, which encompasses research at high-energy colliders, emerged from this process. This vision involves the study of a broad array of “big questions”, to be pursued experimentally via two main avenues: (1) to study known phenomena at high energies looking for *indirect evidence* of physics “beyond the Standard Model” (BSM), and (2) to search for *direct evidence* of BSM physics. This program calls for future accelerators which provide experimental opportunities with high energy and precision. The energy frontier vision voices strong support for future colliders on three timescales.

The vision emphasizes the soon-to-be-completed High Luminosity LHC (HL-LHC) at CERN as the immediate future of the field, with a 3 ab^{-1} physics program and including specialized experiments.

As the priority for the intermediate term, the vision calls for the fastest path towards an electron-positron “Higgs factory” as a global partnership. This vision is consistent with the statement that “An electron-positron Higgs factory is the highest-priority next collider.” made

in the 2020 Update of the European Strategy for Particle Physics, as well as with the call of the 2014 P5 report to “Use the Higgs boson as a new tool for discovery” and with that report’s strong emphasis that the scientific justification for the ILC is compelling.

The new community vision does not express a preference for the type of electron-positron collider. The Higgs factory could be based on a linear collider, such as the International Linear Collider (ILC) or the CERN Linear Collider (CLIC), or on a circular collider, such as the Future Circular Collider (FCC-ee) being studied at CERN, or by both of these complementary collider types. The range of possible Higgs factories, as well as other possible future colliders, was systematically studied by the Implementation Task Force of the Snowmass Accelerator Frontier working group. Discussion in that context recognized that the ILC is still the most technically-ready future Higgs factory candidate, and the only candidate whose construction could start in the near future.

The vision for the longer-term future, beyond Higgs factories, foresees a multi-TeV collider enabling direct discovery at the 10-TeV-scale, such as a 100-TeV proton-proton collider or a 10-TeV muon collider, and it advocates the start of a vigorous R&D program.

The Snowmass community study will culminate in the next months in a set of written summary reports, to be added to the over five hundred white papers submitted to the study. The Snowmass reports and white papers will serve as input to the next phase of the U.S. strategic planning process. In that phase, the U.S. High Energy Physics Advisory Panel (HEPAP) will be charged by the DOE Office of Science and the NSF Directorate for the Mathematical and Physical Sciences to establish a P5 panel to prioritize particle physics projects under defined budget scenarios for the next decade or so. P5 will be composed of a selected group of community members chosen to represent the field as a whole, not their own or institutional interests, in giving strategic advice to DOE and NSF. P5 will be chaired by Professor Hitoshi Murayama of University of California, Berkeley. It is expected to present its final report to HEPAP for endorsement in the first half of 2023.

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IMAGE OF THE WEEK

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17 August 2022

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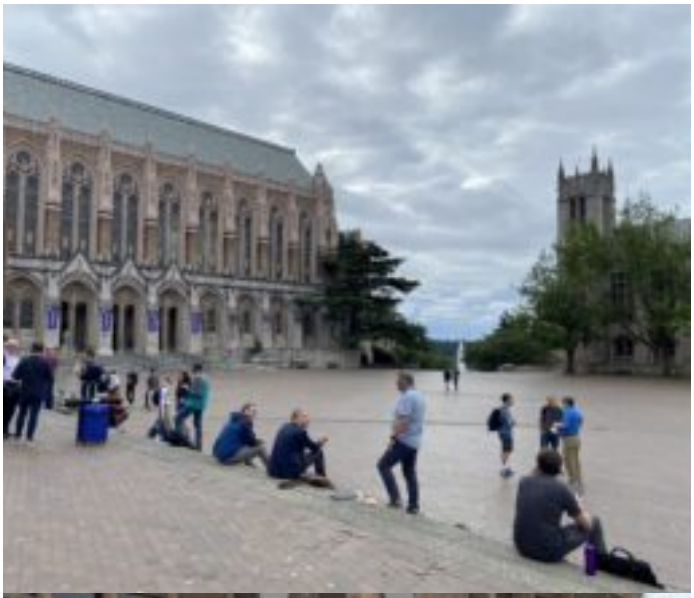

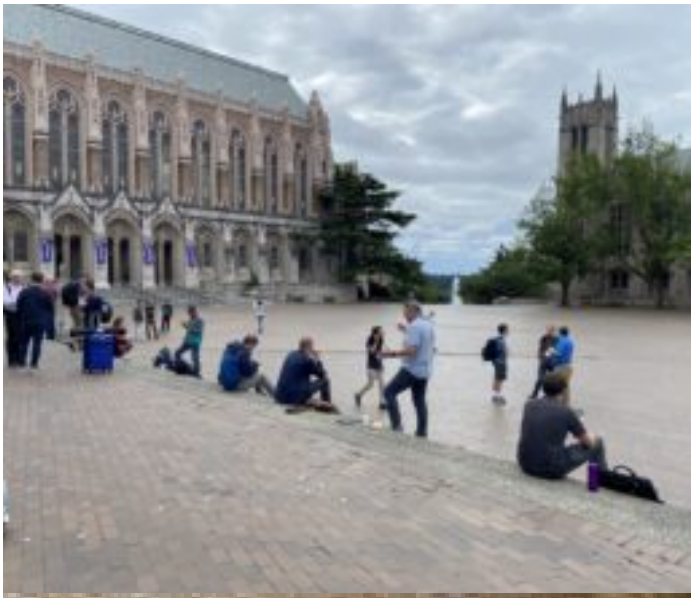


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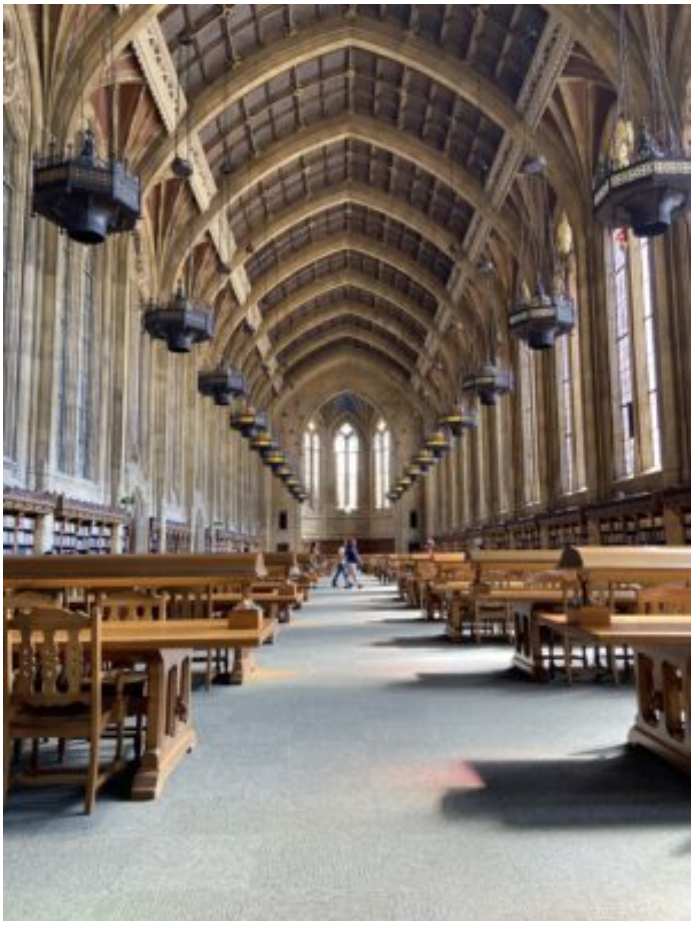


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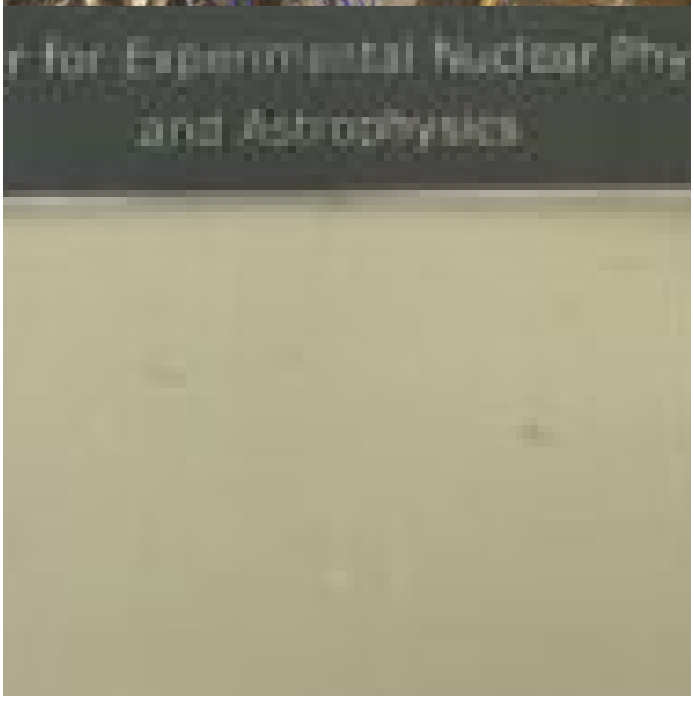
and Astrophysics