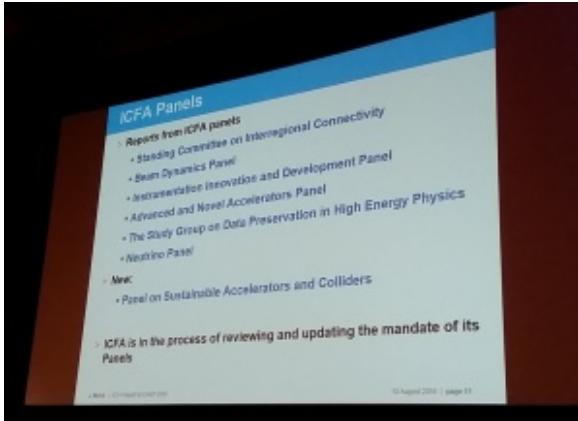


NEWSLINE

THE NEWSLETTER OF THE LINEAR COLLIDER COMMUNITY

DIRECTOR'S CORNER



Changes in LCC and in the US regarding ILC

by Harry Weerts

The mandate of the current LCC structure ends at the end of 2016 and ICFA has now put a revised structure in place. There has also been a change in the way the US supports ILC activities. Harry Weerts, current regional director for the Americas, describes these changes and how they will affect ILC activities.

AROUND THE WORLD

Bump or no bump

That was a question at the 38th International Conference on High Energy Physics in Chicago

by Ricarda Laasch



High Energy Physics (HEP) has always been a field with great discoveries and the field seems to be 'storming' forward as some attendees of this ICHEP declared. Not only new LHC results were the center point of this conference but also the discovery of gravitational waves, new neutrino measurements and of course future facilities like the ILC and CLIC.

FEATURE

Hello Kitty meets ILC

by Rika Takahashi and Ricarda Laasch



Why is Hello Kitty wearing glasses? What is this L doing on her bow? And what mean all those symbols behind her back? These kinds of questions are expected regarding the newest Hello Kitty x Science line. But why? Read more about how this cute small Kitty got in touch with science and about her impact at a huge High Energy Physics conference.

IN THE NEWS

from *Iwate Nippo*

5 August 2016

決意胸に岩手の中学生5人CERNへ ILCプロジェクト

IWATE ILC 2030プロジェクト（岩手日報社主催）のILCクラブに参加し、スイス・ジュネーブの欧州合同原子核研究所（CERN）などを視察する県内の中学生5人は4日、盛岡市の盛岡駅を出発した。(Five junior high school students who are joining IWATE ILC 2020 project departed Morioka station toward Switzerland to visit CERN)

from *Iwate Nichi Nichi*

3 August 2016

ILCに高い関心 サイエンスカフェ 大東で初の地域開催

「いちのせきサイエンスカフェ」（一関市主催）は7月31日、同市大東町の大東図書館で開かれ、研究者の講話や意見交換を通じ、ILCの誘致実現に向け機運を高めた。(Ichinoseki science cafe was held at Daito library, to increase the momentum toward realization of the ILC by listening to the lecture by a scientist)

from *University of Chicago*

1 August 2016

Public invited to free lecture on detection of gravitational waves on Aug. 9

Barry Barish, a key scientific leader behind the Laser Interferometer Gravitational-wave Observatory (LIGO), will deliver a free public lecture on the “The Detection of Gravitational Waves from Binary Black Hole Mergers,” at 6:30 p.m., Aug. 9, in the Chicago Ballroom of the Sheraton Grand Hotel, 301 E. North Water St.

from *NEWSALT*

31 July 2016

キティが素粒子とコラボ! サンリオが新シリーズを発表

「難しくて馴染みのない」科学の世界に親しみ、理解してもらうため、ハローキティとコラボレーションした。(AAA collaborated with Hello Kitty to gain understanding and make people feel more familiar with particle physics)

from *excite news*

29 July 2016

異色のコラボが実現! 「サイエンス×ハローキティ」のアイテム発売へ

7月27日、東京・国際文化会館で「サイエンス×ハローキティ 発売記念商品発表会」が行われ、国際的 researcher グループ「リニアコライダー・コラボレーション」ディレクターのリン・エバンスさん、副ディレクターの村山斉さん、ハローキティが登場した。(On 27 July, PR event for the newly produced Sciecne X Hello Kitty was held in Tokyo. Lyn Evans, Hitoshi Murayama, and Hello Kitty presented new products.)

from *Village Vanguard News*

29 July 2016

ハローキティがサイエンスと異色のコラボ! 宇宙科学を連想するデザインのTシャツなどを販売!!

サンリオのキャラクターでおなじみの「ハローキティ」。今から40年以上も前の1974年に誕生して以来、今もなお世界中から愛され続けている人気キャラクターですが、このたび「サイエンス」との異色のコラボが実現! 新商品を発表しました。(Well known character created by Sanrio, which was born in 1974, and being loved worldwide for over 40 years. Now, Hello Kitty is collaborating with unusual partner – Science.)

from *Roppongi Keizai news*

28 July 2016

六本木でILCシンポジウム 先端加速器の日本立地に向け活動周知

国際文化会館（港区六本木5）で7月27日、先端加速器科学技術推進協議会が「ILC東京イベント2016 – 100万人に伝えるために –」を開催した。(On 27 July, AAA held a PR event for the ILC “ILC Tokyo Event 2016 – to reach out to 1 million people.”)

from *Iwate Nippo*

28 July 2016

宇宙の謎キティと一緒に ILCとコラボグッズ

ハローキティが、電子と陽電子を加速する加速管が入ったILCのクライオモジュールの上で、宇宙の謎を解こうとする姿をTシャツやキーホルダー、ボールペンなどにプリントしたグッズを紹介した。8月15日に東北地域で先行発売し、売り上げの一部を誘致活動に寄付する。(Introduced T shirts, Key chains, and ball point pens with a Hello Kitty riding on the ILC cryomodule. Those goods will be sold in Tohoku area ahead of other cities. Part of the profit will be donated for the ILC PR efforts.)

from *goo news*

27 July 2016

六本木で「サイエンス×ハローキティ」発表会 キティが「世界一ノーベル賞を獲らせる男」とコラボ

国際文化会館（港区六本木5）で7月27日、先端加速器科学技術推進協議会（新橋2）がハローキティとコラボレーションした新キャラクター「サイエンス×ハローキティ」の発表会が行われた。(AAA held a press release event for Sciecne X Hello Kitty on 27 July in Tokyo.)

from Iwate Nichi Nichi

24 July 2016

研究発展へ情報交流 国内の物理学者ら 26日までILC合宿

「加速器・物理合同ILC夏の合宿2016」は23日、一関市巖美町の巖美溪温泉いづくし園で始まった。—国内の科学者や物理学者のほか、大学の博士研究員、大学院生約70人が参加。(ILC summer camp 2016 started on 23 July in Ichinoseki city. About 70 Scientists, post-docs, and graduate students are attending the camp)

from Kahoku Shinpo

22 July 2016

< I L C > 経済効果 9 月数値化へ 岩手県推進協

岩手県 I L C 推進協議会は、誘致実現による県内や国内の経済波及効果を 9 月にまとめる。(Iwate prefectural ILC promotion council will publish a report of their study on the impact on region's economy)

CALENDAR

Upcoming events

Corfu Summer Institute

Corfu, Greece

31 August- 23 September 2016

ALERT 2016 2nd Advanced Low Emittance Rings' Technology

Trieste, Italy

14- 16 September 2016

11th International Positron Source Workshop (POSIPOL 2016)

Orsay, France

14- 16 September 2016

[View complete calendar](#)

PREPRINTS

ARXIV PREPRINTS

1608.00638

The Light and Heavy Higgs Interpretation of the MSSM

1607.08688

Multiplicity distributions for e+e- collisions using Weibull distribution

1607.07781

Effect and suppression of parasitic surface damage in neutron irradiated CMOS Monolithic Active Pixel Sensors

1607.06680

Towards the next generation of simplified Dark Matter models

ANNOUNCEMENTS

LC school

10th International Accelerator School for Linear Colliders is to be held at Teijin Academy, Japan.

[...Read more](#)

Break

LC NewsLine is taking a summer break. The next issue will be published on 8 September.

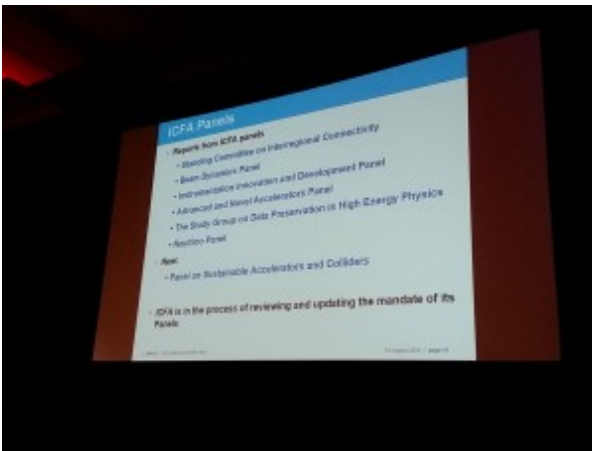
NEWSLINE

THE NEWSLETTER OF THE LINEAR COLLIDER COMMUNITY

DIRECTOR'S CORNER

Changes in LCC and in the US regarding ILC

Harry Weerts | [11 August 2016](#)



The ICFA report from last Sunday's ICFA meeting at ICHEP introduces a new panel and summarizes the changes.

The current Linear Collider Collaboration (LCC) reports to the Linear Collider Board (LCB), which in turn reports to the [International Committee for Accelerators](#) (ICFA). At previous ICFA meetings the mandate of the current LCC was extended to the end of 2016 and at its February 2016 meeting ICFA formed a committee, consisting of the ICFA chair (Joachim Mnich), the CERN Director General (Fabiola Gianotti), the Fermilab director (Nigel Lockyer) and the KEK Director General (Masanori Yamauchi), to propose a revised structure for the international management of the ILC. ICFA met during the [International Conference on High Energy Physics 2016](#) in Chicago, USA on Sunday 7 August, 2016 and discussed the new structure proposed by the committee. ICFA adopted the revised structure, where the program advisory committee is eliminated, because technical progress is minimal, the LCB remains the same and LCC continues to report to LCB. However the new LCC structure is a bit leaner than the previous structure. There will be a LCC director and three associate directors, one each responsible for the ILC

accelerator, the CLIC accelerator and for Physics and Detectors (as before). The concept of the three regional directors (America, Asia and Europe) will not continue and that regional interaction with the new LCC will be assumed by existing structures in the regions. Although not completely defined my assumption is that this will be Asian Committee for Future Accelerator (ACFA) in Asia, European Committee for Future Accelerator (ECFA) in Europe and the America's Linear Collider Committee (ALCC) in the Americas. As part of this, the term of all members of the current LCC will expire at the end of 2016. ICFA will appoint the new director of the LCC and the new director will appoint the above mentioned three associate directors.

Another development in the global activities around the ILC was widely discussed at the [European Linear Collider workshop in Santander](#), Spain, in May 2016 and it was related to the interaction on the ILC between the US and Japanese funding agencies for high energy physics (HEP). Several high level visits between the US and Japan over the last few years resulted in a meeting between the Japanese funding agency (Ministry of Education, Culture, Sports, Science and Technology: MEXT) and the US funding agency (Department of Energy HEP: DOE) to discuss the ILC project. This meeting, which was held about one week before the Santander workshop, started a dialog between MEXT and DOE that will continue with more meetings in the future. As a result of this initial meeting and additional exchanges afterwards there has been a change in support for ILC activities in the US. Up to now funding in the US supported design work on the ILC accelerator project in the areas of facilities design, main linac design, maintaining the machine lattice design, positron source and damping ring development as well as global ILC accelerator management, adding up to about \$1.6M/year. A decision was made by DOE HEP to shift the future funding for ILC to support cost reduction efforts with an emphasis on improving superconducting (SRF) cavity performance. This means that currently supported design work on ILC, described above, will continue until the end of 2016 and then end.

As a follow up to this DOE HEP has asked Fermilab to develop a plan for improving SRF cavity performance and after a meeting between KEK, Fermilab and DOE HEP this plan is being developed and presumably activities in the US will be supported by DOE HEP. This new direction has been encouraged by the recent work at Fermilab, which has resulted in improved cavity performance in terms of

improved quality factor and accelerating gradient, opening the possibility of future cost savings for the ILC.

These changes in the US regarding ILC support signal a new direction, which is much more bi-lateral and more directly involve the funding agencies (MEXT and DOE) and the two main HEP laboratories (KEK and Fermilab).

In this process DOE HEP also confirmed that the priority for ILC funding in the US remains in the accelerator area and that physics and detector developments have lower priority. It should be noted though that there is the US-Japan Joint Committee for High Energy Physics (see [LC Newsline April 2016](#)) and that this committee each year funds common projects in HEP between the two countries. So this remains an option for supporting ILC activities and some detector related projects are already supported from those funds.

I would like to end this LC Newsline article on a personal note. It has been an honor for me to be the regional director for the Americas on the LCC for the last few years and work with my colleagues worldwide to advance linear colliders. Things continue to move forward, albeit with a slower pace I than I would prefer, but a positive development for me personally is that this will be my last LC NewsLine article.

[ACCELERATOR R&D](#) | [DOE](#) | [FERMILAB](#) | [ICFA](#) | [ICHEP](#) | [ILC](#) | [JAPAN](#) | [KEK](#) | [LCB](#) | [LCC](#) | [MEXT](#) | [SUPERCONDUCTING CAVITY](#) | [UNITED STATES](#)

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NEWSLINE

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AROUND THE WORLD

Bump or no bump

That was a question at the 38th International Conference on High Energy Physics in Chicago

Ricarda Laasch | [11 August 2016](#)



Before the official opening and the first plenary talks a movie about science and technology in Chicago, the Windy City, was shown to the audience. Photo by ICHEP Press.

From 3rd August to 10th August the International Conference of High Energy Physics (ICHEP) took place at the Sheraton Hotel in the heart of the windy city. More than 1400 scientists, students and industrial representatives from all around the world were attending this major conference to present their research and discuss exciting results in High Energy Physics (HEP). Especially the leaked news about a possible bump in the ATLAS and CMS data was a hot topic which sadly vanished with more statistics. But many other experiments and results were presented and of course the ILC and CLIC status updates and ongoing works were among those.

For the first LHC run in 2015 a cluster has been spotted at 750 GeV. The so called 750 GeV bump was suspected to be a new discovery – at least for some scientists of the field. Before the beginning of the conference there had been some excitement about the possibility that the bump remained even with

the new 2016 data. As it turned out this was unfortunately a glitch in the statistical analysis and with the new update – a combination of 2015 and 2016 data – the bump has vanished entirely. It might sound like a setback for the LHC but it was not. More than one hundred other very solid results were presented for the Higgs study, top quark measurements, Dark matter search, exotic particles and supersymmetry searches. In a 45 minute session the absolute highlights of the four experiments were presented. Even the two speakers stressed that they had to be very selective due to the shortness of their time and the huge amount of results.

Just before the LHC results and after the official opening of the conference talks about the discovery of neutrinos oscillations and gravitational waves were given as special highlight of the conference. Takaaki Kajita, Nobel Prize winner 2015, from the University of Tokyo presented the long history of the Kamiokande and Super-Kamiokande experiment. “The basic structure of three flavour oscillation has been understood but many open questions remain”, said Kajita. In a later session about future facilities he mentioned that a Hyper-Kamiokande collaboration has been established. They are considering and planning a new neutrino detector with a diameter of 72 metre and a height of 60 metre.

Nergis Malalvala from Massachusetts Institute of Technology (MIT) presented the discovery of gravitational waves. Two black hole collisions and the clear evidence of the gravitational wave were detected during the LIGO (Laser Interferometer Gravitational-Wave Observatory) run in last autumn (September, 2015). “We might have heard the loudest collision since the big bang with our first event”, said Malalvala during her presentation. The black holes that collided were much bigger than any other black hole ever observed with other observational methods. Of course the questions after the talk were lively and it was speculated if we will hear a louder event in the next run.



More 1300 scientists from the high energy physics community were at ICHEP and nearly all seats were taken during the plenary sessions of the conference.

In the 'accelerators: physics, performance, R&D and future facilities' session James Brau gave a short summary of possible operational scenarios for ILC. These studies are done by the ILC parameters joint working group which is a collaborative effort of detector and accelerator physicists alike. "These optimisation studies are based on the many years of globally coordinated effort and include all details about the two state-of-the-art detectors and machine details." Even though only four scenarios were highlighted in the talk Brau mentioned that many more have been tested. The conclusion for the optimised running scenario for the ILC was the 500 GeV ILC baseline with a run time of 20 years and a luminosity upgrade after eight years. The expected question if 500 GeV were really necessary was answered by James Brau: "If you limit the energy you lose discovery potential for the ILC. It is not only a precision measurement machine."

Following in this session were talks about the status of CLIC and the progress on an electron-feedback system at nanometre level which can fulfil the very different requirements for both machines – CLIC and ILC. Afterwards a status from KEK regarding the cryomodule performance and coupler R&D was given by Yasuchika Yamamoto. It was followed by a talk from Akira Yamamoto about the ILC technical progress and prospects. He introduced a plan for ILC cost-reduction R&D between Japan and US that was set into motion with a focus on the SRF technology. "With this plan we demonstrate that the ILC key accelerator technology is ready for the project realisation", said Yamamoto.

During the top quark and electroweak physics session Aleksander Filip Zarniecki, Professor at the University of Warsaw, talked about physics opportunities for measuring the top quark at the ILC and CLIC. The top quark is the heaviest elementary particle and it is still the most unknown one among all the quarks. Measuring its coupling with the Higgs boson or other particles is an ongoing search at the LHC and part of the physics case for either the ILC or CLIC. "It can be the testing ground for quantum chromodynamics and maybe even open the window to new physics" said Zarniecki. He presented the detector requirements for precision measurements for the top and showed how the ILC and CLIC both address this challenge. They will use the so called "particle flow" method to measure the energy and to reconstruct the jets. With the high-granularity calorimeter the aim is to track each single particle in the detector. The two ILC detectors, ILD and SiD, are prepared for this as is the CLIC detector which is based upon both those detector concepts. Especially within the detector development the collaboration between the two projects is clearly visible.

[ACCELERATOR R&D](#) | [CAVITY](#) | [CLIC](#) | [DETECTOR R&D](#) | [ICHEP](#) | [ILC](#) | [ILD](#) | [JAPAN](#) | [LHC](#) | [SCRF](#) | [SID](#) | [UNITED STATES](#)

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NEWSLINE

THE NEWSLETTER OF THE LINEAR COLLIDER COMMUNITY

FEATURE

Hello Kitty meets ILC

Rika Takahashi and Ricarda Laasch | 11 August 2016



*Hello Kitty meeting LCC management (and the world).
Science × Hello Kitty (c) 1976, 2016 SANRIO CO.,
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Particle physics – well, not too many people feel it familiar. That is one of the biggest issue for the communication effort of the International Linear Collider.

Japanese government has been seriously discussing if Japan should host this huge international science project, setting up the expert panel. The panel pointed out that the ILC should gain public support to get a green sign, given the scale of the project in terms of the size and cost. Matter of course, but this is not as easy. ILC is not even an authorized project yet, and it is a project for the particle physics research, one of the most unfamiliar research fields.

To break the situation, Japan's Advanced Accelerator Association promoting science and technology (AAA) teamed up with Sanrio to produce "Science X Hello Kitty" for ILC communication. This adorable collaboration is aimed to pick up the interests from the people who don't have usual contact with science.

"We are expecting reactions like, 'who is this Hello Kitty wearing pair of glasses?' or 'What is this L mark in the middle of Hello Kitty's bow?'" says Hiroyuki Yoshizumi, chair of outreach division at AAA. "Hello Kitty will help us to reach audience we never had a chance before," he said.

Hello Kitty is a cat motif character produced by the Japanese company Sanrio. Merchandise with Hello Kitty are being sold in more than 70 countries, and more than 50,000 items are sold annually. "Hello Kitty is very famous worldwide. We try to match make most famous and most difficult, to get attention, especially on the SNS."


Their attempt was successful for far. The posts on Facebook and Tweets about Science X Hello Kitty got 10 times more reaches than usual posts.

And now, it has reached the Windy City! At the [International Conference on High Energy Physics \(ICHEP\)](#) 2016 in Chicago Clara Nellist, physicist at the Laboratoire de l'Accélérateur Linéaire (LAL Orsay) and part of the ATLAS collaboration, introduced this special outreach opportunity to the high energy physics (HEP) community during a social media panel. The so called "Lunch

and Learn" sessions at ICHEP offered interested physicists the possibility to meet and talk to science communicators, people from the media and scientists who are involved in outreach. Various talks and discussion from *how to make science fun* over *what is a great physics story* to *how to reach people with social media* were given. All these sessions involved long Q&As to offer help, advice and experience with outreach for all those who were interested.

$$\mathcal{L}_F = \sum_i \bar{\psi}_i \left(i \not{\partial} - m_i - \frac{m_i H}{v} \right) \psi_i$$

$$- \frac{g}{2\sqrt{2}} \sum_i \bar{\psi}_i \gamma^\mu (1 - \gamma^5) (T^+ W_\mu^+ + T^- W_\mu^-) \psi_i$$

$$- e \sum_i Q_i \bar{\psi}_i \gamma^\mu \psi_i A_\mu$$


The *Hello Kitty meets science outreach* was part of Clara Nellist's presentation on behalf of the ILC outreach. She volunteered to present this unique opportunity to the community and showed various pictures from the official opening ceremony in Japan and from its social media impact. The interest in the audience was high and after the session many attending scientists wanted their own *Hello Kitty meets science* paper folder.

Thanks to the effort of Michael Peskin (SLAC) and Hitoshi Murayama, Deputy Director of the Linear Collider Collaboration, a parcel of these new goodies was brought to the Windy City so that the HEP community could *get their hands on them*. They received them with excitement. Twitter accounts buzzed and hopefully a number of pictures have been uploaded to Facebook – after all it was the social media session!

Our special thanks go to the organizers of this Lunch and Learn Session from University of Chicago and Fermi Accelerator National Laboratory for giving us the opportunity to present this and of course to Clara Nellist! Thank you very

much!

[AAA](#) | [HEP](#) | [ICHEP](#) | [ILC](#) | [JAPAN](#)

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