

NEWSLINE

THE NEWSLETTER OF THE LINEAR COLLIDER COMMUNITY

AROUND THE WORLD



CLICing into action

by Barbara Warmbein

The first prototype module of CLIC is operational in the CLIC test facility. The Compact Linear Collider Study shows that it does what it says in the acronym: a compact accelerator module, fed by high-power waveguides, cables and cooling tubes, sits elegantly on a custom-made mechanical structure that can be moved in all directions to ultra-high precision, and tests how all the little details work that turn a metal structure into a functioning accelerator module— frequency, losses, damping, acceleration, deceleration. At the CLIC test facility you see none of the heavy-duty steel pipes that characterise the dipole magnets of the LHC.

LIVE FROM JAPAN

Sneak Peek at Interviews: Life in Iwate

by Anna Thomas



Anna Thomas, ILC Internationalization Coordinator working at Oshu City ILC Promotion Division in Japan, presents a series of interview with foreign residents in Iwate on the Oshu ILC website. In the new "Live from Japan" series, she provides a sneak peek at these interviews.

DIRECTOR'S CORNER

Asian Linear Collider Workshop 2015 coming soon

by Akira Yamamoto



The Asian Linear Collider Workshop 2015 (ALCW2015) will take place at KEK from 20 – 24 April. The workshop will be devoted to accelerator, physics and detector aspects of future high energy electron-positron linear colliders. It comes at a critical time for the ILC project development in Japan and will have a special focus on the ILC progress in Japan, says Asian Regional Director Akira Yamamoto.

IMAGE OF THE WEEK

Say “CLIC”!



The CLIC annual workshop, held at CERN from 26 to 30 January, did not only bring together nearly accelerator and detector experts to discuss the next stages of the project – it also featured a session on possible applications from CLIC technology, which drew experts from other fields such as light sources, medical research and industry. See the workshop webpage for slides and more information.

IN THE NEWS

from *CERN Courier*
January/February 2015

[New international offices to aid CERN-KEK partnership](#)

While the programmes at the Japan Proton Accelerator Complex – including upgrades and KEK’s future SuperKEKB electron-positron collider – involve a broad community of European researchers, generic R&D on high-field magnets and high-gradient structures for the Future Circular Collider and Compact Linear Collider studies are of great importance for both organizations. Scientists from Europe, including CERN, form part of the preparation team for the International Linear Collider project that is being pursued in Japan.

from *The Economist*
31 January 2015

[A new awakening?](#)

Accelerators are getting bigger and more expensive. There may be a way to make them smaller and cheaper

CALENDAR

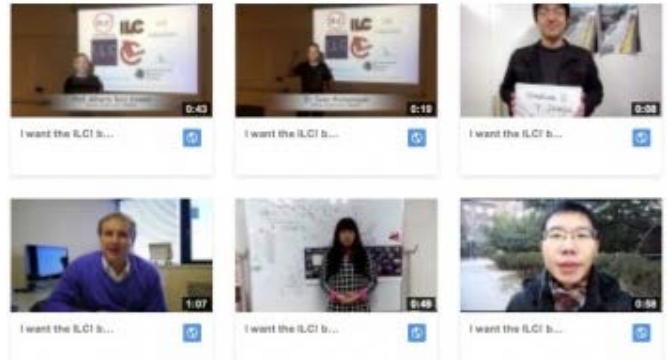
Upcoming schools

[Joint Universities Accelerator School \(JUAS\)](#)
Archamps, Haute Savoie, France
12- 20 March 2015

[View complete calendar](#)

VIDEO OF THE WEEK

#500+!



504 videos and counting: the #mylinearcollider campaign has reached its first big milestone. A big thanks to everybody who stood up in front of cameras or microphones and told the world why they support the linear collider. See all videos on the #mylinearcollider playlist and keep them coming...

PREPRINTS

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The Electron/Muon Specific Two Higgs Doublet Model at e+ e- Colliders

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Exclusive Radiative Decays of W and Z Bosons in QCD Factorization

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Probing top-Z dipole moments at the LHC and ILC

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Contact fermion-Higgs interactions at an e^+e^- collider with polarized beams

1501.05418

Discrete Glimpses of the Physics Landscape after the Higgs Discovery

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Barbara Warmbein | [5 February 2015](#)



The module in the CLIC test facility. Image: CERN

CLIC is one of the potential follow-up projects to the LHC, alongside the International Linear Collider and the Future Circular Collider studies. Instead of smashing protons into protons, it would collide electrons with their antiparticles, the positrons. And instead of bending the particles around a ring, CLIC would be a 50-kilometre-long straight line using a unique acceleration technique of one particle beam driving another like a gigantic power converter. The project published its Conceptual Design Report in 2012, proving that the technologies they plan to use for their ultra-precise machine are working, and is now in a project preparation phase where these technologies are tested, improved, made more efficient and more reliable and where physicists and engineers take a closer look at the cost of the individual components. All this is where the new module comes in.

It's the first module that is integrated into the test facility and has all the functions of future CLIC modules. Many of the different techniques and technologies needed for CLIC's sophisticated drive-beam acceleration, where one beam of electrons pushes another by transferring its energy, have been tested individually in the past. The CLIC researcher have proven that they can generate the high-current drive beam, that they can accelerate it and slow it right down again for the energy transfer to the main beam, that the beam can have the designated gradient and quality and that the energy from the drive beam can actually be transferred to the main beam at the right frequency through the power extraction and transfer structures. They also showed that the accelerating structure can reach a gradient of 105 MV/m at a pulse length of 240 nanoseconds and a low breakdown rate in separate high-power tests.

Now they've put it all together in the prototype module, added CLIC-type alignment systems, accelerating structures with higher order mode damping, integrated diagnostics tools like wakefield monitors and are testing it with beam. "It's a complex system, and our very first experiments look promising," says CERN's Steffen Doebert, who is part of the team that developed the module. "We have to check all the connections and calibrate the module before installing a second super accelerating structure consisting of two accelerator units."

The two super structures will be installed on the same girder and then tested with beam (another two modules are being built and will be tested without beam). With the help the diagnostic tools integrated into the module, which can detect very small fields, the scientists know where the beam is at any time within the structure, and can make beam based corrections thanks to a very precise alignment system developed by the CERN metrology group and a silicon carbide support that can be adjusted in all directions. "After all we need to be precise down to ten microns," says Doebert.

The module development has been a large effort within the CLIC collaboration with contributions from outside institutions and CERN groups. They meet from 26 to 30 January at CERN for their annual collaboration meeting.

This story was first published on the [CERN website](#) and the [CERN Bulletin](#)

[ACCELERATOR R&D](#) | [CLIC](#) | [DRIVE BEAM](#)

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LIVE FROM JAPAN

Sneak Peek at Interviews: Life in Iwate

Anna Thomas | [5 February 2015](#)

The first time I heard that there was something called an ILC that might come to Iwate, it was maybe 2011 or 2012 and I was drinking coffee at Esashi bus station in Oshu City taking a break before walking over to teach an English class. There was a poster on the wall in Japanese talking about something I didn't quite understand, though what I could understand sounded so science fiction-y that I was kind of skeptical it wasn't some kind of cult.

A few years later, not only have I established that the ILC is not a cult, but for my new job I have been tasked with assessing the future needs of ILC-related personnel and trying to reach out in English via Facebook and other platforms to show people what life here is like, among other things

So here you are, presumably wondering what kind of life you would lead if you came here. To provide a more balanced picture than just my personal experience, we decided to provide some different points of view about life in Iwate on the [Oshu ILC website](#). So far there are six interviews with non-Japanese Iwate people who come from three different countries.

One thing every person had in common, by the way, were the words used to describe the Iwate people: friendly, kind, helpful, and hospitable. Local children here are making posters about the ILC with multicultural people holding hands, so you definitely don't need to worry about not being welcomed.

Here are some sneak peeks from the interviews:

What advice would you have for ILC researchers or other related workers new to Iwate?

Uday, from Bangladesh, PhD student in veterinary medicine living in Morioka:

Buy a used car. "Here the used cars are very cheap. It has a Japanese engine, so you can rely on the condition, though it is old." Uday has had his car for one year, and say he hasn't had any problems with the car. "For 30 to 40 man yen (around \$2500-\$3300 US or 2000-2800 euros), you can buy a car. It is very cheap, I think."

Hazel, from the Philippines, living in Takizawa:

"Having a smartphone is really convenient. There are translation applications, and map applications. I think those are important." Also, because it's easy to get lost in Japan and it can be difficult to get back on track, Hazel recommends doing your research before heading out. "Before they go to places, I think they should understand fully where they are going and how they will get there."

Mulu, from Ethiopia, plant genomics and breeding researcher living in Kitakami:

Make an effort to get out of the house and into the community, despite your hard work schedule. "If I have to advise someone moving here, it's that they should make an effort to just go out. I know that researchers tend to have their own personal time, that's the nature of the research, but I think people should break out of that and be more interactive with people. It really helps a lot."

What would you want to share about Iwate with people new here? What are some of the best things about Iwate?

Father Miguel, from Mexico, Catholic priest living in Morioka:

"I love the nature, and I love the history, and I love the beautiful buildings. So when I have friends who are coming, I just take them around the city to see the rivers and the parks we have, where you can have walks. I also take them to the mountains, to show

them how we enjoy the ski season.”

Mulu, from Ethiopia, plant genomics and breeding researcher living in Kitakami:

Winter in Iwate has one big advantage: the sun stays out. “The European winter is so depressing. It’s always dark, and the days are so short. Here, even if it’s minus 10, deep snow, there’s sunshine. It’s kind of dry. It’s amazing. To have sunshine on snow? It’s so beautiful. I think that part of Iwate is so nice. That rarely happens [in other places], so people should really enjoy that.”

Cecelia, from the Philippines, part time worker and active volunteer living in Shiwa:

Cecelia sent lots of pictures with her interview, wanting to share the beauty of life here with everyone.



Blue skies over Northern Japan. Image: private



When I first arrived here, I was amazed by the beautiful natural surroundings and the abundant agriculture of the region. The place is so peaceful nice to walk around and enjoy the fresh clean air. Image: Cecilia

To read the complete interviews, see the Oshu ILC website

at: www.city.oshu.iwate.jp/hm/ilc/english/lii.html

- Links to eight “Oshu for You” videos with local foreign residents introducing Oshu City: www.city.oshu.iwate.jp/hm/ilc/english/ofy.html
- Daily updates at the Oshu ILC Facebook page: www.facebook.com/OshuILC
- And Twitter account: twitter.com/Oshu_ILC



About the author

Anna Thomas is the new ILC Internationalization Coordinator working at Oshu City ILC Promotion Division. She’s been in Iwate since May 2010. Here are some of the things she enjoys about life here: squeaky snow during snowshoe walks, weird antisocial squirrels with long ears, the singing baked yam truck, local superheroes, affordable national health care, tip-free excellent customer service, and an environment so safe people leave the keys in their cars. Also sake.

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Image: CERN

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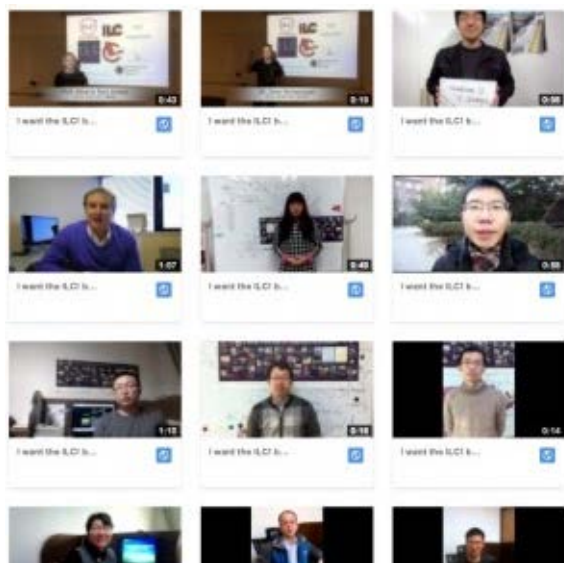
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