PRESS RELEASE

Colliders colliding

ILC and CLIC unite in the Linear Collider Collaboration, a new global organisation to advance the global development work for next-generation particle collider

Vancouver, 21 February 2013. The two most mature future particle physics projects, the International Linear Collider (ILC) and the Compact Linear Collider study (CLIC), have formed an official organisational partnership today. As the newly founded Linear Collider Collaboration, they will coordinate and advance the global development work for the linear collider, a global project to complement the Large Hadron Collider (LHC) at CERN and ultimately understand the deepest secrets of the universe. The Linear Collider Collaboration is headed by Lyn Evans, former Project Manager of CERN's Large Hadron Collider (LHC). Hitoshi Murayama, Director of the Kavli Institute for the Physics and Mathematics of the Universe, will serve as a deputy director.

The Linear Collider Board, headed by the University of Tokyo's Sachio Komamiya, is a new oversight committee for the Linear Collider Collaboration that will take office at the same time. The oversight board was appointed by the International Committee for Future Accelerators (ICFA), which is currently chaired by Pier Oddone, Director of Fermilab, US.

"It is my great pleasure to see the worldwide efforts to design and build the next-generation linear collider take their next step. I look forward to working with Lyn and his team," said ICFA chair Pier Oddone.

"Now that the LHC has delivered its first and exciting discovery I am eager to help the next project on its way," said Linear Collider Director Lyn Evans. *"I am an accelerator builder, and with the strong support the ILC receives from Japan, the LCC may be getting the tunneling machines out soon for a Higgs factory in Japan while at the same time pushing frontiers in CLIC technology."*

"The two projects, ILC and CLIC, have similar goals, but use very different technologies and are at different stages of maturity. I look forward to seeing progress in both projects as chair of the Linear Collider Board," said Sachio Komamiya.

The Linear Collider Collaboration has three main sections, reflecting the three areas of research that will continue to be conducted. The International Linear Collider section will be led by Mike Harrison (Brookhaven National Lab, US), the Compact Linear Collider section will be led by Steinar Stapnes (CERN), and the section for Physics and Detectors will be led by Hitoshi Yamamoto (Tohoku University). For the ILC, which will publish its *Technical Design Report* in June 2013, the main focus is on preparing it for possible construction while at the same time further advancing acceleration technologies and design optimisation. For CLIC, research into the

novel drive beam acceleration concept will continue to proceed. For Physics and Detectors, research and development of novel detector technologies and concepts will continue at full power, fully exploiting the synergies that exist between ILC and CLIC detector requirements.

The ILC's Global Design Effort and its supervisory organisation, the ILC Steering committee, officially handed over their duty to LCC and LCB, but they will continue to work together until the official completion of the *Technical Design Report* for the ILC in June 2013.

The Linear Collider Board and new Directorate met for the first time on 21 February at Canada's national laboratory for particle and nuclear physics TRIUMF. The press conference will be webcast at http://mediasitemob1.mediagroup.ubc.ca/Mediasite/Play/4927082a86c441c3bbf1ee94611b0c131d . Journalists will have the opportunity to ask questions via the online webcast using a standard web browser.

After the discovery of a new particle at the Large Hadron Collider at CERN, the case for a linear collider has become even more compelling. The new particle, which was found to have a mass of 126 GeV, needs to be studied in great detail to precisely determine its properties and confirm (or not) that it is the final missing piece of the Standard Model of Particle Physics, the Higgs particle. The LHC will only be able to do these precision studies up to a certain point, while a linear collider, with its 'cleaner' collisions between electrons and their antiparticles, positrons, will be able to probe deeply into the new particle, and a range of other phenomena that physics still expect to be discovered at the LHC.

The International Linear Collider is currently the most advanced linear collider project, both in terms of advanced and tested acceleration technology as well as from an organisational point of view. Truly global from the start with some 1000 people from around the world working on its design, it can be built in stages – first, at half its design energy, as a so-called Higgs factory for the precision studies of the new particle, second, at its design energy of 500 GeV, and third, at double this energy, which opens further possibilities for as yet undiscovered physics phenomena. Japan is signaling interest to host the ILC.

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About the Linear Collider Collaboration:

The ILC and CLIC are potential next-generation particle colliders that would complement the Large Hadron Collider LHC at CERN. The Linear Collider Collaboration is the organisation that brings the two projects together to coordinate the research and development work that is being done for accelerators and detectors around the world. Although there is not yet a clear signal to launch the construction of a linear collider, there is consensus in the scientific community that the results from the LHC should be complemented by a collider that can study the discoveries in greater detail by producing different kinds of collisions.

Both projects will continue to exist and carry on their R&D activities, but with even more synergy between areas common to both. These include the detectors, the planning of the infrastructure,

civil engineering aspects and more. The projects are at different stages of maturity: while CLIC published *its Conceptual Design Report* in 2012 and is scheduled to complete the *Technical Design Report*, which demonstrates feasibility for construction, in a couple of years**,** the ILC has completed the draft of its *Technical Design Report* in 2012 and will, after a series of reviews, publish the final version including a new figure for the projected cost, in June 2013. With the finalisation of the *Technical Design Report*, the ILC's design team, the Global Design Effort or GDE, headed by Barry Barish, formally completes its mandate, which is one of the reasons for the establishment of the new Linear Collider Collaboration.

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