

ILD Physics Working group

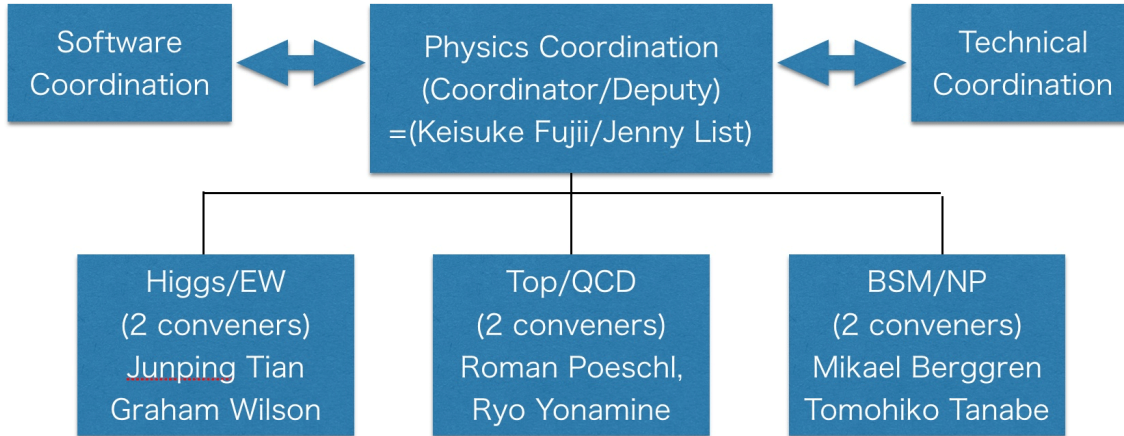
Overview

The goals of the ILD physics working group are

1. to make compelling physics case for ILC that can convince decision makers that ILC is worth the investment, and
2. to optimize the ILD detector design so as to realize (1).

To achieve these goals, the ILD physics working group has a coordination team. The roles of the physics coordination team is to make a task list and set milestones and timeline, organize (currently three) subgroups and collaborate with other parts of ILD (for detector optimization in particular) as well as with [the LCC physics working group](#), monitor and, if needed, guide and/or help progress of each subgroup, communicate the achievements to appropriate targets as needed, thereby positively influencing decision makers, while contributing to international and regional strategy discussions.

The structure and the current members of the coordination team of the ILD physics working group are shown below:



There are some gray zones between the three subgroups. For the overlaps, we tentatively draw the boundaries in the following way:

- Higgs CP from ttH primarily belongs to Higgs/EW, but keeps close with Top/QCD
- $e^+e^- \rightarrow bb$ belongs to Top/QCD
- $e^+e^- \rightarrow ff$ (f n.e. b) belongs to Higgs/EW but its interpretation together with BSM/NP
- Higgs \rightarrow invisible belongs to Higgs/EW, but its interpretation together with BSM/NP
- Direct production of non-SM-Higgses belongs to BSM/NP
- Exotic top decays such as $t \rightarrow ch$ belongs to Top/QCD

The BSM/NP subgroup takes care of simulation studies for *direct production of new particles*. Specific BSM interpretations of analyses done in other working groups will be done in collaboration with the LCC physics working group and other theory colleagues.

Subgroups

- [Higgs/EW](#)
- [Top/QCD](#)
- [BSM/NP](#)

Meetings and Mailing Lists

There are bi-weekly ILD Software and Analysis phone meetings (see: <http://agenda.linearcollider.org/category/131/>) every other Wednesday.

Subscribe to the [ild-detector-optimisation](#) mailing list in order to get the invitations to these meetings.

To request a time slot for a talk in this series of meetings, send a message to the mailing list for the working group conveners: ild-physics-conveners@desy.de

Each bi-weekly meeting has a physics focus which rotates among the three subgroups. It was decided, however, that until the current benchmark analyses are completed for the ILD Design Report (IDR) we will hold our Software and Analysis meetings weekly with no particular physics focus so as to finish up the IDR as scheduled.

The short-term schedule with physics focus is shown here

- March 25: chaired by Keisuke Fujii**
- April 8: chaired by Jenny List**
- April 22: chaired by Frank Gaede (tbc)**
- May 6: chaired by Daniel Jeans (tbc)**

for the coming ~2 months period.

There are additional subgroup mailing lists:

- Higgs/EW: ild-physics-higgs@desy.de
- Top/QCD: ild-physics-top@desy.de
- BSM/NP: ild-physics-bsm@desy.de

which are mainly for communication among **active people**, not so much for every interested ILD member to stay informed.

Physics-Driven Detector Optimisation

The list of the selected physics benchmarks can be found [here](#).

Documents

Mostly for researchers

- *The International Linear Collider: A Global Project*, 5 March 2019
- *The role of positron polarization for the initial 250 GeV stage of the International Linear Collider*, 9 January 2018
- *Physics Case for the 250 GeV Stage of the International Linear Collider*, 20 October 2017
- *The Potential of the ILC for Discovering New Particles*, 17 February 2017
- *Implication of the 750 GeV gamma-gamma Resonance as a Case Study for the International Linear Collider*, 13 July 2016
- *ILC Operating Scenarios*, 25 June 2015
- *Physics Case for the International Linear Collider*, 19 June 2015
- *ILC Physics, ILC Technical Design Report, Volume 2*, 12 June 2013

For general public

- *Exploring the Fabric of the Universe*, December 2016