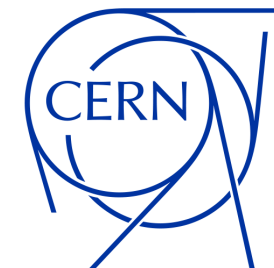


IDT-WG3 News



ilc international development team

Jenny List
ILC Europe meeting
5 April 2023



WG3 Organisation and mandates

Chair: Jenny List (DESY/CERN)

Deputies: Roman Pöschl (IJCLab), Michael Peskin (SLAC), Daniel Jeans (KEK), Jinlong Zhang (ANL)

Coordinator and Deputy coordinator(s)

Steering Group

Subgroup conveners, Coordinator and Deputy Coordinator(s)

Kiyotomo Kawagoe (Kyushu),
Carsten Hensel (Rio de Janeiro),
Ivanka Božović Jelisavčić (Belgrade)

Speaker's bureau

Andy White (UT Arlington), Ties Behnke (DESY), Yuanning Gao (Peking), Frank Simon (MPP), Jim Brau (Oregon), **Taikan Suehara (Kyushu)**, Phil Burrows (Oxford), Francesco Forti (INFN), Filip Zarnecki (Warsaw), **Shoji Asai (U Tokyo)**,
Patty McBride (Fermilab), Mihoko Nojiri (KEK), Timothy Nelson (SLAC), Kajari Mazumdar (Mumbai), Phillip Urquijo (Melbourne), Dmitri Denisov (Brookhaven), Hitoshi Murayama (Berkeley/Tokyo), Claude Vallee (Marseille)

Interface with machine

Coordinate the interactions between the accelerator and facility infrastructure planning and the needs of the experiments

Karsten Buesser (DESY), **Tomoyuki Sanuki (Tohoku)**,
Roman Poeschl (IJCLab), Tom Markiewicz (SLAC)

Detector and technology R&D

Provide a forum for discussion and coordination of the detector and technology R&D for the future experimental programme

Marcel Vos (Valencia), Katja Krueger (DESY)
Jinlong Zhang (ANL), Shinya Narita (Iwate)

Software and computing

Promote and provide coordination of the software development and computing planning

Frank Gaede (DESY), Jan Strube (PNNL)
Daniel Jeans (KEK)

Physics potential and opportunity

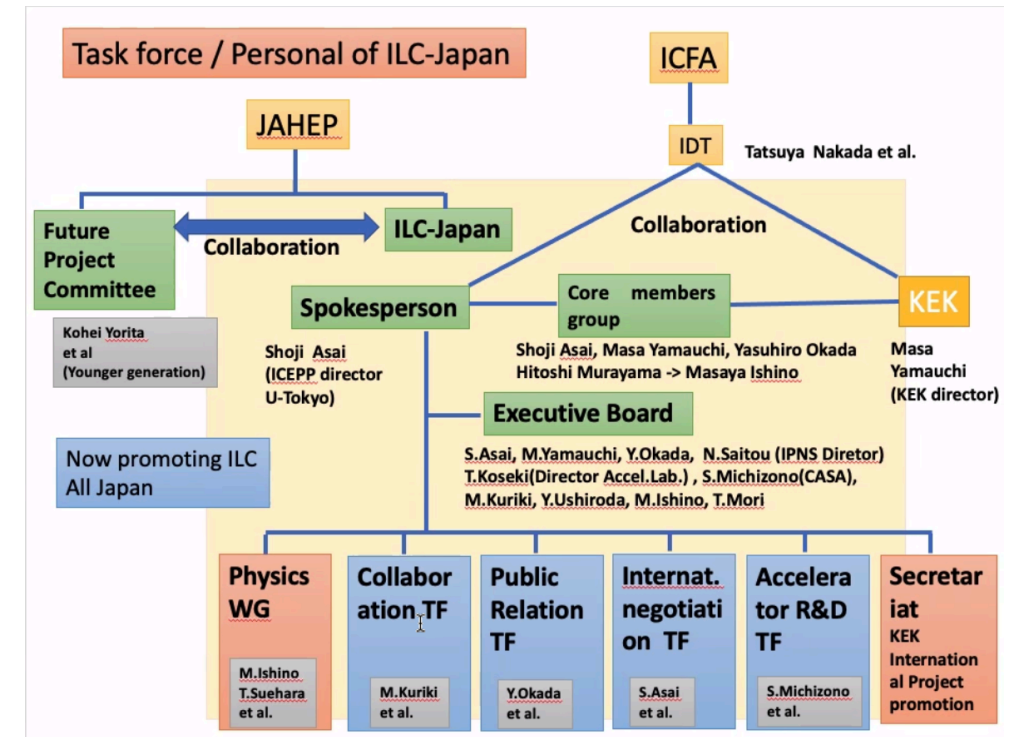
Encourage and develop ideas for exploiting the physics potential of the ILC collider and by use of the beams available for more specialised experiments

Michael Peskin (SLAC), Junping Tian (Tokyo)
Aidan Robson (Glasgow)

IDT WG3 Activities

Collaboration with ILC-Japan & Co

- **WG3 meets ~monthly with representatives of ILC-Japan, KEK IPNS EF group and JAHEP's Future Project group**
 - identified concrete topics in all WG3 areas for collaboration
- **identified concrete topics for collaboration with ILC-Japan and C³:**
 - Physics Potential: Higgs self-coupling
 - two open physics meeting
 - also working meetings of active people
 - **Software: Flavour tagging etc with Machine Learning => mini-workshop on March 15**
 - Detectors & Technologies: Fast timing detectors => mini-workshop in preparation
 - MDI: backgrounds & Co => reaching out to Belle-II, C³, ...
- **WG3 Open Physics meetings**
 - continue to be well attended, switch back to EU-friendly as of next meeting on
 - next **April 13, 3pm: mu- e+ collider, H->Zgamma, Heavy Neutral Leptons**
 - <https://agenda.linearcollider.org/event/9884/>



IDT WG3 & P5

Timelines,

- reminder:
 - final version of ILC Whitepaper on arXiv, highly recommended to use as resource
 - webpage with all Snowmass reports: <https://www.slac.stanford.edu/econf/C210711/index.html>
 - webpage with all information about P5: <http://hitoshi.berkeley.edu/P5/>
 - **Andy White will present Detectors for Linear Colliders at BNL Energy Frontier Town Hall April 11/12**
=> registration deadline TODAY, also for online participation <https://www.bnl.gov/p5meeting/>
- **intense discussion in WG3:**
 - How would detector proposals, selection process, TDRs, construction, installation into the new ILC timeline?
 - In the last schedule from ~2years ago, a process to invite engagement from the whole HEP community, with completely new detector ideas, was foreseen => this seems not quite realistic for a detector to be ready for data-taking in 2040.
 - In order to be ready for data-taking in 2040, probably at least the “big” detector components must rely on what has been developed successfully over decades for SiD/ILD
 - A question coming up: do both detectors have to be ready on day 1, or could there be a time staggering?

IDT WG3 & P5

Time-critical detector tasks - for any detector to be ready in 2040

From studies for ILD/SiD for DBDs and thereafter in E-JADE, we know a lot

a) the "big stuff":

- the coil - incl. the difficulty that currently industry would need to re-learn the technology => workshop at CERN on this last fall, very nicely summarized by Karsten here: <https://indico.desy.de/event/35953/>
- the main calorimeters
- the yoke
- large / outer tracker technologies => since huge number of m^2 of silicon?

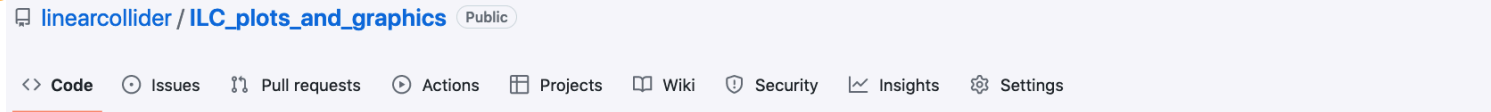
b) "fixing the envelopes": Once

- the overall dimensions of the "big stuff"
- the B-field strength
- the MDI in the forward region
- the required gaps for routing of services
- the assembly strategy

are fixed, the smaller / inner detectors have somewhat more time to decide on the exact technology - down to the extreme of a vertex detector which probably gets exchanged / upgrade every few years anyhow?

“ILC graphics & plots” collection

https://github.com/linearcollider/ILC_plots_and_graphics

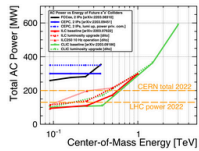


General Graphics

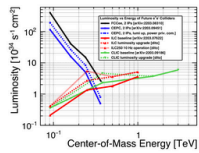
Luminosity and power vs energy

(all by JennyListDESY according to references specified on the plots)

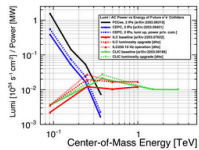
- site power vs log(E): Links to the [.pdf](#) [.eps](#) [.C](#)



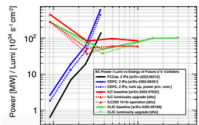
- luminosity vs log(E): Links to the [.pdf](#) [.eps](#) [.C](#)



- luminosity/power vs log(E): Links to the [.pdf](#) [.eps](#) [.C](#)

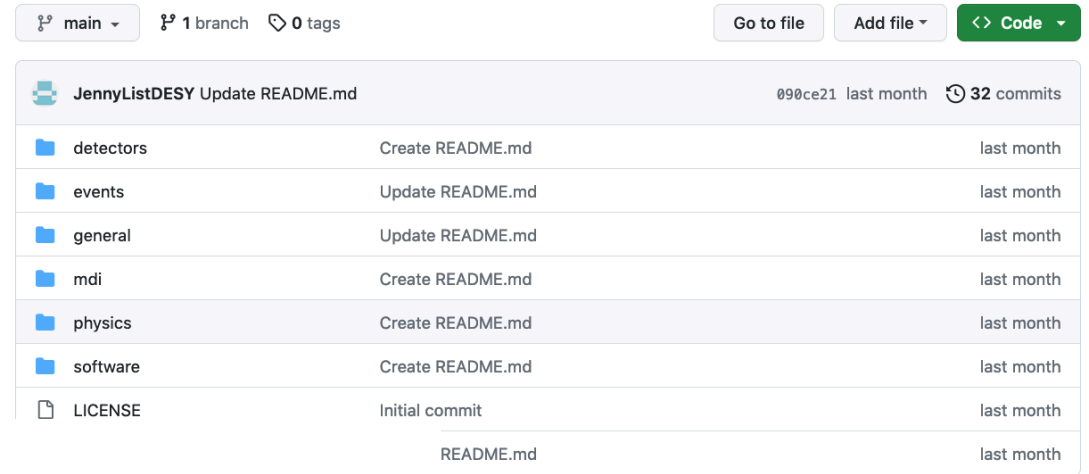


- power/luminosity vs log(E): Links to the [.pdf](#) [.eps](#) [.C](#)



Event Displays

A very nice collection of ILD event displays can be found at <https://www-jlc.kek.jp/~miyamoto/evdisp/html/index.html>



ILC_plots_and_graphics

Collection of useful plots and graphics on ILC

- [General](#)
- [Physics](#)
- [Detectors](#)
- [Software](#)
- [MDI](#)
- [Event Displays](#)

IDT WG3 - Speakers Bureau

ILC Talks etc

- very active Speakers' Bureau <https://linearcollider.org/team/wg3/speakers-bureau/> , idt-wg3-sb@ml.post.kek.jp
- e.g. plenary talks at
 - LISHEP, International School and Conference on High Energy Physics, Rio de Janeiro, Brazil, March 5-10 2023
 - International Conference on the Physics of the Two Infinities, Kyoto, March 27-30 2023
- also targeting
 - CORFU SUMMER INSTITUTE: Workshop on Future Accelerators, Corfu, Greece, 23-29 April 2023
 - Portorož 2023: Particle Physics from Early Universe to Future Colliders, Portorož, Slovenia (11-14 April 2023)
 - Les Houches Workshop Series 'Physics at TeV Colliders and Beyond the Standard Model', France, 12-30 June 2023
 - LeptonPhoton, EPS, ...

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Please let them know

- if you'd be available to give a talk (always looking for speakers!)
- if you've been invited to give a talk
- if you spot a conference where ILC should be present