

September 2nd 2021
Claude Vallée (CPPM)

IDT-WG3 NEWS

General news
Subgroups activity highlights
ILCX Workshop

IDT-WG3: PHYSICS&DETECTORS

Chair: Hitoshi Murayama (Berkeley/Tokyo)

Deputies: Jenny List (DESY) and Claude Vallée (Marseille)

Coordinator and Deputy coordinator(s)

Kiyotomo Kawagoe (Kyushu), Alain Bellerive (Carleton),
Ivanka Božović Jelisavčić (Belgrade)

Steering Group

Subgroup conveners, Coordinator and Deputy Coordinator(s)

Speaker's bureau

Andy White (UT Arlington), Ties Behnke (DESY), Yuanning Gao (Peking), Frank Simon (MPP), Jim Brau (Oregon), Keisuke Fujii (KEK), Phil Burrows (Oxford), Francesco Forti (INFN),
Filip Zarnecki (Warsaw), Patty McBride (Fermilab), Mihoko Nojiri (KEK), CERN member, Timothy Nelson (SLAC), Kajari Mazumdar (Mumbai), Phillip Urquijo (Melbourne), Dmitri Denisov (Brookhaven)

Interface with machine

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

Karsten Buesser (DESY), Yasuhiro Sugimoto (KEK),
Roman Poeschl (Orsay), US

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)
Petra Merkel (Fermilab), David Miller (Chicago)

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)

All subgroups now meeting regularly, see WG3 indico:

<https://agenda.linearcollider.org/category/258/>



21-22 July 2021
Europe/Zurich timezone

Enter your search term

Overview

Call for Abstracts

Timetable

Registration

Participant List

Videoconference

BCLC Discord Server

Contact

 bclc.workshop@gmail.com

42 registrants →

In view of the construction of the International Linear Collider (ILC) and the potential physics scope available in e+e- collisions, we are starting a Brazilian initiative with a focus on the ILC physics named "Brazilian Center for Linear Collider studies" (BCLC).


To survey the physics interests among the Brazilian High-Energy community, we are organizing a 2-day **online** workshop to discuss possible research topics in the ILC, such as:

- Theoretical ideas to be investigated with the ILC data;
- Computing infrastructure for data processing, distribution, and analysis;
- Detector and collider instrumentation.

With this workshop, we want to trigger discussions to help us plan different proposals that the BCLC could contribute to the ILC working groups.

 **Starts** 21 Jul 2021, 14:00
Ends 22 Jul 2021, 22:00
Europe/Zurich

  Recording day 1 

 **Registration**
You are registered for this event.

[See details >](#)

Brazilian LC kickoff meeting held in July

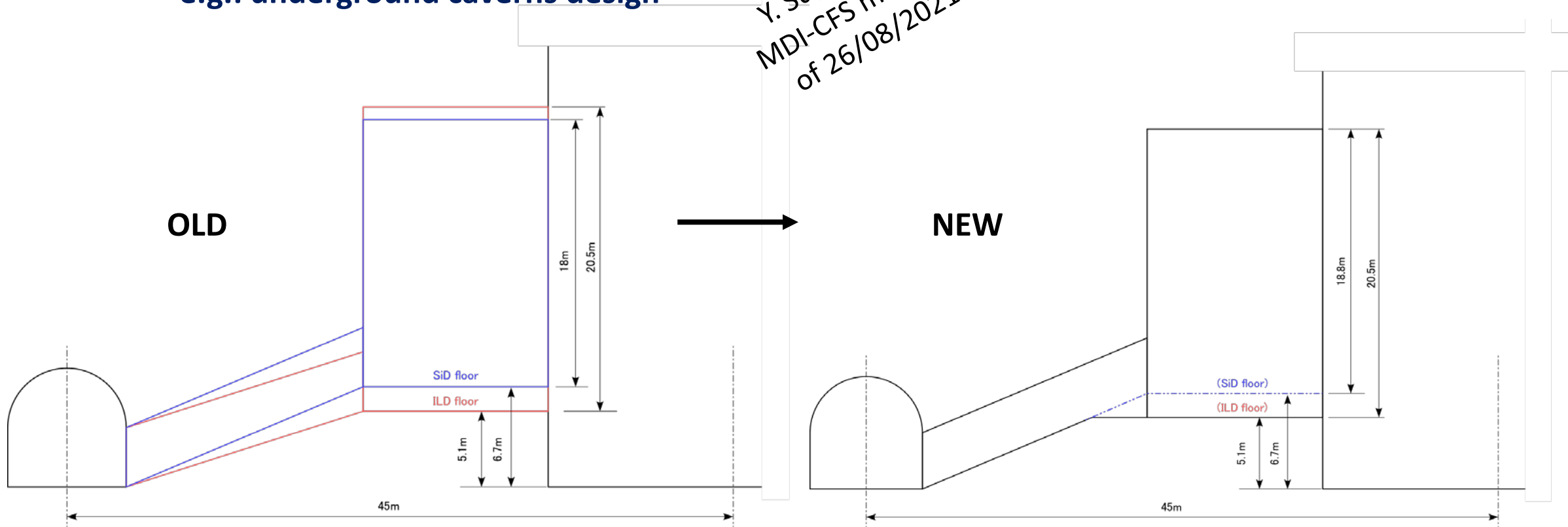
with contributions of the WG3 coordination and connection to the WG3 software ILCsoft tutorial

MDI-CFS taskforce

Meeting regularly with machine and local CFS experts to optimize civil engineering
One highlight: revisit CFS to have it independent of existing and potential detector concepts

e.g.: underground caverns design

Y. Sugimoto at MDI-CFS meeting of 26/08/2021



MDI-BDS/PHYS taskforce

2 kickoff meetings held on July 5 and 23:

<https://agenda.linearcollider.org/event/9310/> <https://agenda.linearcollider.org/event/9337/>

Topical meetings scheduled during autumn:

- **17/9/21 – Layout of MDI region**
 - Layout of SiD and ILD inner region (SiD confirmed, ILD pending)
 - Status of QD0 vibration test and considerations of new QD0 design (Brett Parker, confirmed)
 - Interplay machine and detector magnets (Y. Okugi, confirmed)
 - BPMs: Hardware details and locations (P. Burrows, confirmed)
- **30/9/21 – Software for and precision of/for background studies**
 - Reminder on Guinea Pig, CAIN, FLUKA
 - Lessons from SuperKEKB (Comparison with CAIN)
 - What theoretical precision is needed?
 - Settings for background simulations and practical handling of background files
 - ...
- **16/10/21 – L***
 - Detailed review of advantages disadvantages for the detectors (including cost)
 - Pros and cons from machine side (including cost)
 - e.g. Implications on push-pull?
- **25/11/21 – Beam calorimeters and beam monitoring**
 - Fast feedback by Beam calorimeters, interplay with machine
 - SuperKEKB: BPM as input to feedback system (SuperKEKB speaker to be invited)
 - Luminosity monitoring at SuperKEKB

MDI-BDS/PHYS taskforce cont'd

- **09/12/21 – Beam pipe and vertex detectors**
 - Beam pipe: Lay out and considerations for different radii (i.e. cooling)
 - Which level of vacuum?
 - Vertex detectors: Tolerances, time cuts to reduce background
- **06/01/22 - Polarimetry and beam energy measurements**
 - What precisions have been assumed in earlier documents
 - Technological developments since
 - Impact on physics potential of more precise energy spectrometers and polarimeters
e.g. Polarimetry at Belle II
- **13/01/22 Spare slot for topical meeting and/or summary and discussion on way ahead**
- **14/01/22 – 15/02/22**
 - Writing of (short) summary document
 - Definition of real working groups and work program for Pre-lab
 - Including discussion of funding of activities
- **Each topical meeting will be scheduled for about two hours (more if really needed)**
 - Details of program will be defined in coordination with WG3 Conveners and WG2 contacts
 - Speakers will be contacts 3-4 weeks before the actual topical meeting

SOFTWARE & COMPUTING

2 tutorials organized in July and August

tutorial: Introduction to iLCSoft

Wednesday 21 Jul 2021, 15:30 → 17:00 Europe/Zurich

Description Topic: ILC software tutorial

Join Zoom Meeting <https://uoregon.zoom.us/j/98648363075?pwd=eFN0NUtoN2oyUEZtRkU0ZVWEwtldz09>

Meeting ID: 986 4836 3075

Passcode: 912115

Participants

A	Aleksander Filip Zarnecki	A	Alfonso Zerwekh	A	amir subba	A	Anna Rosmanitz	A	Antonio Vilela Pereira
A	Arinze Ijeoma	B	Blae Stacey	B	Brendon Madison	C	Carsten Hensel	C	Cesar Bernardes

15:30 → 17:00 Introduction to iLCSoft

1h 30m

Speaker: Thomas Madlener (Deutsches Elektronen-Synchrotron (DE))

GMT20210721-133... GMT20210721-133... GMT20210721-133... ilcsoft_tutorial_jul21...

tutorial: Jet flavor identification with LCFIPlus

Wednesday 18 Aug 2021, 22:30 → 23:59 Asia/Tokyo

Description Topic: IDT-WG3 tutorial
Time: Aug 18, 2021 10:00 PM Osaka, Sapporo, Tokyo

Join Zoom Meeting
<https://zoom.us/j/98987077469?pwd=N1dtajlhUVVjYVcvaWRjVklFR3pGQT09>

Meeting ID: 989 8707 7469
Passcode: Tutorial

Join by SIP
98987077469@zoomcrc.com

Join by H.323
162.255.37.11 (US West)
162.255.36.11 (US East)
115.114.131.7 (India Mumbai)
115.114.115.7 (India Hyderabad)
213.19.144.110 (Amsterdam Netherlands)
213.244.140.110 (Germany)
103.122.166.55 (Australia Sydney)
103.122.167.55 (Australia Melbourne)
149.137.40.110 (Singapore)
64.211.144.160 (Brazil)
149.137.68.253 (Mexico)
69.174.57.160 (Canada Toronto)
65.39.152.160 (Canada Vancouver)
207.226.132.110 (Japan Tokyo)
149.137.24.110 (Japan Osaka)
Meeting ID: 989 8707 7469
Passcode: 76611035

zoom_0.mp4

Registration tutorial registration

Register

Participants

A	Aleksander Filip Zarnecki	A	Arinze Ijeoma	B	Bohdan Dudar	C	Chris Potter	D	Daniel Jeans		
G	Graham Wilson	H	Hanhua Cui	O	Olga Sergijenko	P	Peter McKeown	P	Peter Ornyisi	T	Thomas Madlener

22:30 → 23:30 LCFIPlus

1h

Speaker: Taikan Suehara (kyushu University)

210818-tutorial-lcfip...

Next one planned on September 15th on SGV fast simulation:

<https://agenda.linearcollider.org/event/9319/>

PHYSICS POTENTIAL AND OPPORTUNITY

2 open meetings organized in July and August

IDT-WG3-Phys Open Meeting

Thursday 15 Jul 2021, 15:00 → 17:00 Europe/Zurich



Description Topic: IDT-WG3-Phys Open Meeting
Time: May 27, 2021 03:00 PM Amsterdam, Berlin, Rome, Stockholm, Vienna

Join Zoom Meeting
<https://desy.zoom.us/j/95268555872>

Meeting ID: 952 6855 5872
Passcode: 314159

15:00 → 15:30 **Top/Heavy Flavor/QCD -- Theory Advances for Jet Substructure at Future Lepton Colliders**

Speaker: Andrew Larkoski

ILCWG3_Larkoski.pdf

30m

15:30 → 16:00 **Top/Heavy Flavor/QCD - Modern techniques for Jet reconstruction**

Speaker: Ben Nachman (Lawrence Berkeley National Lab. (US))

ILCMeetingJuly202...

30m

16:00 → 16:30 **Modelling and Precision - Analytical ISR photon calculation**

Speaker: Kay Schönwald

talk-schoenwald.pdf

30m

16:30 → 17:00 **Higgs - Opportunities for the ILC in the Light of HL-LHC Results**

Speaker: Sven Heinemeyer

sven.pdf

30m

IDT-WG3-Phys Open Meeting

Thursday 12 Aug 2021, 15:00 → 17:15 Europe/Zurich



Description Topic: IDT-WG3-Phys Open Meeting
Time: May 27, 2021 03:00 PM Amsterdam, Berlin, Rome, Stockholm, Vienna

Join Zoom Meeting
<https://desy.zoom.us/j/95268555872>

Meeting ID: 952 6855 5872
Passcode: 314159

15:00 → 15:30 **Progress on CEPC Higgs analyses & related performance study**

Speaker: Manqi RUAN (IHEP-LLR/CERN)

CEPC Higgs - 5.pdf

30m

15:30 → 16:00 **b quark tagging and vertex charge at ILC, and measurement of AFB(b)**

Speaker: Adrian Irlles (IFIC (CSIC/UVEG) Valencia)

20210812.pdf

30m

16:00 → 16:30 **Measurement of Higgs couplings using the reactions $\gamma\gamma \rightarrow H$ and $e\gamma \rightarrow eH$**

Speaker: Tim Barklow

Measurement_Higg...

30m

16:30 → 17:00 **Axion-Like Particles at the ILC Giga-Z**

Speaker: Noah Steinberg (University of Michigan)

ILC_Physics_ALP_Gi...

30m

Next one planned on September 16th: <https://agenda.linearcollider.org/event/9256/>

SPEAKERS BUREAU

Very active in
feeding upcoming conferences
with ILC abstracts
and
organizing rehearsals

Speakers Bureau (WG3)

Contact

Ivanka Božović-Jelšavčić (U. Belgrade – Chair), Alain Bellerive (Carleton U.), Kiyotomo Kawagoe (Kyushu U.)

Email: idt-wg3-sb@ml.post.kek.jp

List of IDT WG3 Talks

LeptonPhoton 2021 – <https://indico.cern.ch/event/949705/>

Aim to host an in-person conference (abstract to be submitted soon), January 10-14, 2022

Higgs2021 – <https://indico.cern.ch/event/1090068/>

18-22 October 2021 (to be posted)

- Flavor-Tagging of Quark Pairs at e+e- Higgs/Top Factories, Jesús P. Márquez (IFIC and University of Valencia) – (slides link / to come)
- Strange Quark as a Probe for New Physics in the Higgs Sector, Matt Basso (University of Toronto) – (slides link / to come)
- Probing Anomalous ZZH couplings at the ILC, Tomohisa Ogawa (KEK) – (slides link / to come)
- Probing anomalous WWH coupling at the ILC, Junping Tian (University of Tokyo) – (slides link / to come)
- Search of Higgs exotic decays at the ILC, Yu Kato (University of Tokyo) – (slides link / to come)

PANIC 2021 – <https://indico.lip.pt/event/392/>

Online conference, 5-10 September 2021

- Detector R&D for the International Linear Collider, David Miller (U. of Chicago) – (slides link / to come)
- ILC Higgs physics potential, Shin-ichi Kawada (KEK) – (slides link / to come)

Plenary sessions being worked out

Parallel sessions:

- Software/computing
- Calorimeters
- Tracking Detectors
- New Technologies & Ideas for Collider Detectors
- Industry Forum
- six topical groups: Higgs properties, Top/heavy flavour/QCD, BSM particle production, Electroweak physics, Global interpretations, Modeling and precision theory
- transversal task forces: MDI-CFS, MDI-BDS, communication, Fixed Target/Dark Sectors/Applications to outside particle physics
- detector engineering (material support, cooling, power) detector conveners
- SRF, Sources, BDS/Nano beam, CFS, ILC application (to physics, material science, etc.) (input from WG2)
- Green ILC

Session convener teams close to final

ILCX PREPARATION & NEXT STEPS

**2nd circular and
call for abstracts
imminent!**

- **Pre-registration:**
 - LOC received new topics/ideas for a potential experiment from 8 registrants (out of 59) => already shared with Program Committee (PC)
- **Website:**
 - PC requested to open abstract submission => LOC has received session details, and is going to implement “call for abstract” page soon
 - should be updated **next week** according to contents of the 2nd circular
- **2nd circular:**
 - LOC prepares a draft, then Hitoshi/PC will check and distribute **next week** (fully on 1 Sep.)
 - fully-online format => registration fee is free / time table stays same
 - abstract submission deadline: 24 Sep. (but expect deadline extension)
 - session list fixed, conveners still TBC
- **WS poster:**
 - will be finalized after IAC members are confirmed
 - distribute to the community and upload on website (as PDF file) soon
- **Next LOC meeting will be held in mid-Sept.**