

DRAFT Summary Notes of

10th Institute Board Meeting of the CLIC Detector and Physics Study

Held at CERN on 9 March 2017, 12:35 – 13:55

Present at CERN:

Jean-Jaques BLAISING for Yannis KARYOTAKIS (LAPP **Annecy**), Mathieu BENOIT (**Geneva** University), Ivanka BOZOVIC-JELISAVCIC (**Vinca** Institute of Nuclear Sciences, Belgrade), Phil BURROWS (University of **Oxford**), Haluk DENIZLI (Abant Izzet Baysal University (**AIBU**), Bolu), Konrad ELSENER (**CERN**), Marek IDZIK (**AGH** University of Science and Technology, Cracow), Aharon LEVY (**Tel Aviv** University), Victoria MARTIN (**Edinburgh**), Aidan ROBSON (University of **Glasgow**), Juan FUSTER for Alberto RUIZ (**Spanish Network for Future Linear Colliders**), Frank SIMON (**Max Planck Institut für Physik**, Munich), Boruo XU for Mark THOMSON (University of **Cambridge**), Alasdair WINTER for Nigel WATSON (University of **Birmingham**), Joost VOSSEBELD (University of **Liverpool**), James WELLS (University of **Michigan**), Filip ZARNECKI, (University of **Warsaw**), Leszek ZAWIEJSKI (The Henryk Niewodniczanski Institute of Nuclear Physics, **Polish Academy of Sciences**, Cracow), Igor BOYKO for Alexey ZHEMCHUGOV (**Joint Institute for Nuclear Research JINR**, Dubna),

Also present: Lucie LINSSEN (CERN), CLICdp spokesperson; Andrea WULZER (CERN-TH), Philipp ROLOFF (CERN-EP)

Attended via VIDYO: Konstantin AFANACIEV (**Minsk**, Bielorrussia), Gerald EIGEN (University of **Bergen**), Joel GOLDSTEIN (University of **Bristol**)

Apologies/absences: Mark BOLAND (Australian Collaboration for Accelerator Science (**ACAS**)), Marcel DEMARTEAU (**Argonne**), Marco Aurelio DIAZ GUTIERREZ (Pontifica Universidad Catolica de Chile, **Santiago**), Tomas LASTOVICKA (Institute of Physics, Academy of Sciences, **Prague**), Titi PREDA (**Institute for Space Science**, Bucharest), Ulrik UGGERHOJ (**Aarhus** University), Ivan PERIC (**KIT Karlsruhe**)

Link to Meeting (Indico page): <https://indico.cern.ch/event/609152/>

1) Welcome to the IB meeting

Aidan Robson welcomed everybody to this 10th CLICdp IB meeting. He expressed his thanks to the many members of the collaboration who are participating to the CLIC workshop 2017 - in fact, almost half of the CLICdp collaboration members are registered at this workshop.

Aidan also expressed, on behalf of the IB, thanks and congratulations to the CLICdp speakers in the plenary sessions for their excellent presentations.

2) Welcome to a new CLICdp member institute

Aidan then welcomed Haluk DENIZLI from Abant Izzet Baysal University (**AIBU**) in Bolu, Turkey. AIBU is a very recent member of CLICdp, but has been involved in the CLIC accelerator domain for some years already. In addition to the beam dynamics studies for CLIC, the group now wants to get involved in BSM physics studies within CLICdp. As initial training in the use of the software tools, two members spent a few weeks at CERN in January 2017.

3) New theory/phenomenology contact

Aidan went on to present Andrea WULZER (EPFL, CERN), who has recently been appointed by the CERN Theory Department as the theory/phenomenology contact person to CLIC. Andrea was welcomed and invited to give a short presentation on the work plan as discussed so far.

Andrea briefly described how he envisages several working units to come into action soon, in order to help with input towards the documents needed for the Update of the European Strategy. Details can be found in his slides:

https://indico.cern.ch/event/609152/contributions/2456025/attachments/1424816/2185565/Working_Units.pdf

This work will be co-ordinated by Andrea together with James Wells and Jorge de Blas.

In the discussion, several points concerning the beamstrahlung spectrum in Madgraph and a forthcoming DELPHES card for the new CLIC detector were clarified.

4) Forthcoming election of the CLICdp IB chair

Aidan then pointed out that, according to the MoC, his term as chair of the CLICdp IB will end in June 2017. For the election of a successor, K. Elsener (CERN) will act as polling officer. Nominations of candidates should be sent to Konrad in the coming 2-3 weeks.

As a reminder, Aidan mentioned that the election of the CLICdp spokesperson is due before the end of 2017. The new IB chair will be the polling officer for that election.

5) Report from the Spokesperson

a) CLICdp organisational matters

After a reminder of the present structure with the 3 working groups, Lucie proposed minor changes to the mandate of two of them:

- The first working group on Physics Analysis will also treat matters of alignment and calibration involving physics processes;

- The third working group will be called "Detector Optimisation and Validation" and will look at performance validation for basic observables (this is closely linked to software validation).

In addition, the work on theory and phenomenology will be grouped under a new working group (the title and mandate of this working group remain to be defined).

The IB indicated contentment with the proposed changes without further comments.

Lucie also mentioned that a CERN fellow has recently started working on the DELPHES card describing the performance of the new CLIC detector. This will be presented in due time in a physics analysis meeting. The advantage will be that more "fast" simulation results can become available with this commonly used tool. It was pointed out that Delphes cards are available for ILD and also SiD.

As a last point under organisational matters, Lucie explained that, due to end of her contract, Rosa Simoniello will be leaving the Publications Committee of CLICdp. Nigel Watson has kindly agreed to take on this role. The IB expressed their thanks both to Rosa for the huge amount of work done for PubCom, and to Nigel for agreeing to take over.

b) CLICdp work plan towards the European Strategy Update

As had been mentioned earlier at the CLIC workshop, all the documents relating to the European Strategy Update must be available by the end of 2018. Lucie presented the list of documents which CLICdp should prepare (see her slide 6 at this link

https://indico.cern.ch/event/609152/contributions/2456023/attachments/1422873/2181234/Linssen_CLICdp_spokesperson_report_IB_Mar9_2017.pdf).

The status and plans of the individual documents can be summarized as follows:

- Updated staging baseline (yellow report): published;
- Higgs overview paper: available on arXiv, revised version submitted to EPJC;
- CLICdp note describing the new detector model: available; it is envisaged to complement this note with a second paper, including the results for the different validation studies;
- Top physics overview paper: a complete draft should be available at the end of 2017; a collegial editing team has been nominated; Aidan Robson, Philipp Roloff, Frank Simon, Rickard Ström (who will also help with the logistics), Andrea Wulzer and Philipp Zarnecki;
- BSM results overview: to be completed in 2018, detailed layout must be available end 2017;
- R&D results report(s): to be completed in 2018, detailed layout and plans must be available end 2017;
- CLICdp plans for the years 2020-2025: to be completed in 2018

Moreover, one or two concise summary documents on CLICdp and CLIC should be prepared. The contents must be agreed with the accelerator team before the end of 2017.

In the discussion, it was pointed out that at present all physics studies are still performed using the CDR detector models. A couple of new studies (to be chosen) should be carried out with the new detector model in the coming year. Another discussion point was the very strict deadline of end 2018 - clearly, some of the annexes and supporting documents might still be improved after that date.

c) For discussion: CLICdp review

Lucie went on to explain the CDR review, which took place in 2011, and to propose a CLICdp review for end 2017 / beginning 2018. The aim of such a review would be to get comments on our on-going work, and to get feedback on how best to present the case for CLIC to the European Strategy Update.

The discussion on such a possible review was lively. While existing bodies such as the ECFA R&D review committee might be used, the pros and cons of this vs. an ad-hoc and CLICdp-specific review body were discussed. In particular, we want to have a very strong focus on physics, much more than at the CDR review - detector subsystems might be discussed in less detail this time.

The IB concluded unanimously that such a review would be useful and should take place - although it is evident that this implies also a lot of extra work. Details on the review will have to be worked out in the coming months.

d) Forthcoming events

- CALICE collaboration meeting 22-24 March in Paris;
- LC vertex detector workshop, 30 April - 3 May at Ringberg Castle near Munich;
- Top physics at LC, workshop 7-9 June at CERN;
- AWLC2017 meeting 26-30 June at SLAC;
- **CLICdp collaboration meeting** 29-30 August at CERN;
- FCAL meeting beginning of September in Serbia;
- LCWS 2017 (confirmed?) 23-27 October in Strasbourg.

6) A.O.B.

Ivanka BOZOVIC-JELISAVCIC: asked about the status of the Higgs paper- while it had already been reported that the paper had been re-submitted to the journal, it was uncertain how long this publication process would still take;

Phil BURROWS: pointed out that at the AWLC meeting at SLAC, on the Wednesday afternoon, it is foreseen to have a session dedicated to energy staging (250 - 500 GeV). CLIC experts from physics and accelerator should be present, and prepared to contribute to the discussion;

Phil BURROWS: also mentioned that the chair of LCB has asked the CLIC accelerator team to study, in the next few months, the cost of a 250 GeV CLIC based on klystrons;

Gerald EIGEN: mentioned that he is now a member of the LCC conference talk committee, and suggested possible common ILC+CLIC abstract submission to forthcoming conferences; Lucie stressed that CLICdp has its own and independent speakers committee (which has, in the past, arranged for specific common talks with ILD, e.g. on top physics).

7) Next CLICdp IB meeting

The next IB meeting will be held during the CLICdp meeting of 29-30 August, at CERN. Details will be announced in due course.