

SDHCAL activities dashboard

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IP2I (previously IPN) Lyon

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Ongoing activities

Test beam analysis

all TB

- Uniformity (Status ?)
- Low Energy hadrons (Bing+SJTU)
- Uses of BDT (Bing+SJTU) Published.

09/2018 only

- SiWECAL+SDHCAL (Hector+CIEMAT : (done ?))
- Tricot electronics (GG, Imad (?) on hold (?))

2015 only

- Analysis with rotated device (**Hector**)

Ongoing activities

Hardware

- 2m² GRPC+HR3 ASU+ new DIF (Lyon+ CIEMAT)
- Timing electronics (CMS muon for strip and SJTU for SDHCAL pads): Board design, first results expected in december.
- Cooling for CEPC (SJTU)
- SJTU lab (SJTU)

Simulation

- ILD SDHCAL simulation/reconstruction performance monitoring (Camilo, CIEMAT)
- Tricot simulation (on hold)
- Timing in simulation (developments by Guillaume Garillot → Analysis by Imad)
- Prototype simulation upgrade (Multithreading, CEPC version, ...) (François)

Ongoing activities

grid

- Transferring SDHCAL data from file catalogue LFC to DiracFC (Gérald)

PFA

- ArborPFA → APRIL (Bo, → GG, on hold)
- Rand Index (GG, on hold)
- PFA with timing (Bo+Imad)

Digitisation

Incorporate GRPC response modeling to digitiser, (Clermont+Lyon).

ILD/CEPC Analysis

- $e^+e^- \rightarrow Z \rightarrow \text{jets}$ then $e^+e^- \rightarrow ZH \rightarrow \text{jets}$ (CIEMAT)
- $e^+e^- \rightarrow \gamma\gamma VV$ (Bing)
- include FCC-ee also ?

AIDA++ \Rightarrow Aidanova status

AIDA 2020 Expression of Interest

- EOI #145 PFA (ARTIC) : Included in software WP (50 k€).
- EOI #58 Timing SDHCAL and EOI #57 Tricot electronics : merged and included in WP gaseous detectors \Rightarrow Aidanova : reduced financing (50 k€, Mary Cruz representative)

SDHCAL removed from high granularity calorimeter WP

AIDA++ 2nd Open meeting at CERN, 09/23,

<https://indico.cern.ch/event/838461/>

Published papers

Recent

- SJTU+Lyon work : JINST 14 (2019) no.10, P10034
<http://inspirehep.net/record/1762795>.
- CHEF 2019 proceedings :
 - JINST 15 (2020) 05, C05016. <https://arxiv.org/abs/2002.09678>
 - JINST 15 (2020) 05, C05022. **7 pages document available only on journal website.**
 - There were 3 SDHCAL talks at CHEF 2019
- BDT paper
 - **Not Yet Published**, no journal reference exists for this paper.
 - Preprint at <https://arxiv.org/abs/2004.02972>
 - For all free access servers (CNRS HAL, CERN CDS, inspireHEP), the 18 pages paper preprint is considered to be the CHEF 2019 proceeding (e.g. <https://inspirehep.net/literature/1790235>).

Publications

Papers, short term

- Current analysis of test beam data (GRPC uniformity, low energy hadrons, ...) ?

Notes in preparation

- Bo : APRIL PFA (on hold, **Bo got a position in a chinese university**)
- Bing : Low energy hadrons + uniformity studies
- Hector : analysis with rotated devices.

Papers, medium term

- More on GRPC response modeling by Clermont ?

Coming meetings

Recent workshops

- CALICE analysis meeting, July 30, 2020
<https://agenda.linearcollider.org/event/8585/> (one talk by Bing)
- CALICE Collaboration meeting, Sept 28-30, 2020
<https://agenda.linearcollider.org/event/8608/>

Coming workshops

- AWLC 2020 (Americas Workshop on Linear Colliders), October 19-22, online
<https://conf.slac.stanford.edu/awlc2020/>
- 3rd CEPC Workshop EU Edition, May 4-7, Marseille, **POSTPONED to spring 2021** <https://indico.in2p3.fr/event/20053/>

Coming conferences

Abstract closed



Open to abstract

- HEPChile2021, January 4-8 2021, Valparaiso, Chile,
<https://indico.cern.ch/event/698387/> (abstract up to 11/30/20)
- CALOR2020 → CALOR2021, May 17-21 2021, Sussex, UK,
<https://indico.cern.ch/event/847884/> (abstract 12/7/20 to 03/26/21)
- TIPP 2020, May 24-29, British Columbia, Canada, **CANCELED**
<https://indico.cern.ch/event/864722/> (abstract up to 04/24/20)
- PANIC 2020, **POSTPONED** August 30 - September 3 2021, Lisbon, Portugal,
<https://indico.lip.pt/event/592/> (abstract will reopen in 2021)
- PIC 2020, **POSTPONED** <https://pic2020.physik.rwth-aachen.de/>

More specialized meetings

Electronics

- Pico-second timing detectors, July 1-3, Zurich, Switzerland, <https://indico.cern.ch/event/861104/>, **POSTPONED** to June 16-18 2021

Advanced software

- IML Machine Learning Workshop, June 2-5, CERN, **POSTPONED to October 19-22** <https://indico.cern.ch/event/852553/> (Abstract open up to September 4)
- ACAT 2020 (Advanced Computing and Analysis Techniques in Physics Research) September 8-12, Daejon, South Korea, **POSTPONED** to end of 2021 <https://indico.cern.ch/event/855454/>, abstract up to 04/07/2020

Request from CALICE

News from autumn 2019 CALICE Meeting

- Message from Roman. Clean/update the CALICE twiki page.
<https://twiki.cern.ch/twiki/bin/view/CALICE/SdHCal>

ILD regular meetings

ILD group meeting next Oct 13th

ILD Analysys/software meeting October 7

- <https://agenda.linearcollider.org/event/8668/>
- One talk by Camilo on ILD HCAL options comparison.
- Sc-ECAL calibration
- Update on $t\bar{t}$ analysis.
- Next meeting November 4th.

Snowmass 2021

- American particle physics strategy update
- Currently discussed in all future collider projects.
- ILD preparation : LOI, simplified ilcsoft, delphesLC card
<http://ilcsnowmass.org/>
- Energy Frontier workshop was held July 20-22
<https://indico.fnal.gov/event/43963/overview>
- Process planning meeting Oct 5-8,
<https://indico.fnal.gov/event/44870/overview> (finishing today)

Snowmass 2021 and CALICE

Input for the Instrumentation Frontier

<https://snowmass21.org/instrumentation/start>

- Dominant themes for calorimetry : High granularity, Dual Readout, PFA, timing
- CALICE has submitted not 6 but 10 proposals
<https://agenda.linearcollider.org/event/8647/>
 - **Timing-SDHCAL (Imad)**
 - Generic R&D on timing layer in calorimeters (Frank Simon)
 - Scintillator Strip ECAL
 - SiW ECAL
 - Common compact readout for CALICE calorimeters (for ILD option 1) (Katja, Roman, Taikan)
 - AHCAL (Katja, Felix)
 - High granularity crystal ECAL.
 - DHCAL (José).
 - ALICE FoCal improved.
 - New sensors for SiW ECAL.

Outlook

Flash info

- A virtual machine with ILCsoft+some SDHCAL soft ready.
- **Bing PhD defense this november.**
- Survey to determine best week day for meeting : <https://eventos.renater.fr/survey/day-for-the-sdhcal-meeting-kjvo9wrr>

Don't hesitate to add any important activity, paper, or conference, I may have miss.

Next meetings

Europe (summer) 9-11 / China 15-17 / Korea 16-18

- October 22 (Europe summer time)
- November 5 (Europe winter time)

Backup

Past meetings

- LCWS2019, October 28 - November 1 2019, Sendai,
<https://agenda.linearcollider.org/event/8217/> : one talk by Bo on APRIL PFA
- CEPC workshop, November 18-20, IHEP, Beijing,
<https://indico.ihep.ac.cn/event/9960/>, a SDHCAL talk by Bing.
- CHEF2019, November 25-29, Kyushu,
<https://indico.cern.ch/event/818783/> 3 talks (Bing, GG, Djamel)
 - PID with Boosted Decision Tree (Bing)
 - Digitizer (Djamel)
 - APRIL PFA (GG)
- RPC2020, February 10-14, Roma,
<https://agenda.infn.it/event/19942/> **No abstract submitted**
- Spring 2020 CALICE meeting, March 4-6, McGill
<https://agenda.linearcollider.org/event/8343/overview> Very little SDHCAL presence (2 persons)
One talk by Mary-Cruz

Past meetings (II)

- FCC France, May 14-15, By video,
<https://indico.in2p3.fr/event/20792/>
- CALICE analysis meeting, May 20
<https://agenda.linearcollider.org/event/8526/> (one talk by Hector)