

# SDHCAL activities dashboard

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# Ongoing activities

## Test beam analysis

### all TB

- Uniformity (Bing+SJTU)
- Low Energy hadrons (Bing+SJTU)
- Uses of BDT (Bing+SJTU)

### 09/2018 only

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

### 2015 only

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

# Ongoing activities

## Hardware

- 2m<sup>2</sup> GRPC+HR3 ASU+ new DIF (Lyon+ CIEMAT )
- Timing electronics (CMS muon for strip and SJTU for SDHCAL pads)
- 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

## PFA

- ArborPFA  $\rightarrow$  APRIL (Bo,  $\rightarrow$  GG )
- Rand Index (GG, on hold)
- PFA with timing (Imad starting)

## Digitisation

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

## ILD/CEPC Analysis

- $e^+e^- \rightarrow Z \rightarrow$  jets then  $e^+e^- \rightarrow ZH \rightarrow$  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++ 2<sup>nd</sup> Open meeting at CERN, 09/23,

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

# Published papers

## Recent

- SJTU 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. <https://arxiv.org/abs/2004.02972>
  - There were 3 SDHCAL talks at CHEF 2019

# Publications

## Papers, short term

- Transformation of BDT note CALICE-CAN-2019-001 <https://inspirehep.net/record/1718039> into a paper, **accepted by JINST**.
- 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

## Papers, medium term

- More on GRPC response modeling by Clermont ?

# Coming meetings

## Recent workshops

- 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)

## Coming workshops

- 3rd CEPC Workshop EU Edition, May 4-7, Marseille, **POSTPONED to spring 2021** <https://indico.in2p3.fr/event/20053/>
- CALICE Analysis meeting **is IN ONE WEEK**, July 30 14:00  
<https://agenda.linearcollider.org/event/8585/>



# Coming conferences

## Abstract closed

- ICHEP 2020 July 30 - August 5, Prague <http://ichep2020.org/>, 2 CALICE talks, going online

## Open to abstract

- 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)

# 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

last ILD group meeting next Sept 1st

## ILD Analysys/software meeting

- Last on July 15th <https://agenda.linearcollider.org/event/8586/>
- Many software developments (simulation DELPHES, miniDST) towards Snowmass.
- Talk on Stau searches.
- Next meetings July 29th, August 12th.

# Snowmass 2021

- American particle physics strategy update
- Currently discussed in all future collider projects.
- Energy Frontier workshop was held begin of this week (20-22)  
<https://indico.fnal.gov/event/43963/overview>
- CALICE starts preparing input for the Instrumentation Frontier  
<https://snowmass21.org/instrumentation/start>
  - Calorimetry topical group  
<https://snowmass21.org/instrumentation/calorimetry>

# Outlook

## Flash info

- A virtual machine with ILCsoft+some SDHCAL soft ready.

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

- Suspend meetings during august summer break
- Resume meetings : September 3rd

# 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