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# Analysis

List of tools to analyze the SiW ECAL Beam tests

Indico agendas for Analysis meeting [↗](#)

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## Old pages:

<https://twiki.cern.ch/twiki/bin/view/CALICE/SiWEcalBT201511Ana>

## Analysis Topics, to do list and summary of results (if existing)

### Detector performance and calibration

- Raw2root, event building scripts (done, see software bullet)
- Root code for single slab analysis (done, see software bullet)
- Root code for event built files analysis (done, see software bullet)
- Check pedestals, double pedestal (retriggers) and stability:
  - [https://indico.in2p3.fr/event/16314/contributions/55489/attachments/43823/54246/20170914\\_performance.pdf](https://indico.in2p3.fr/event/16314/contributions/55489/attachments/43823/54246/20170914_performance.pdf) and
  - <https://indico.in2p3.fr/event/16314/contributions/55490/attachments/43822/54245/170914-tbanalysis-suehara->
    - ◆ to do: pedestal stability on high load events (em showers) (A. Irlles)
    - ◆ to do: pedestal width vs pixel path length (PCB) (A. Irlles and S. Callier)
- Event building scripts (done, see software bullet)
- Raw calibration (default MIP run, 45degrees run and magnetic field)
  - [https://indico.in2p3.fr/event/16314/contributions/55487/attachments/43828/54251/20170914\\_results.pdf](https://indico.in2p3.fr/event/16314/contributions/55487/attachments/43828/54251/20170914_results.pdf) [↗](#)
- Raw shower profiles and linearity tests (default MIP run, 45degrees run and magnetic field)
  - [https://indico.in2p3.fr/event/16314/contributions/55487/attachments/43828/54251/20170914\\_results.pdf](https://indico.in2p3.fr/event/16314/contributions/55487/attachments/43828/54251/20170914_results.pdf) [↗](#)

### Simulation and shower response

- To do.

More results presented in public or CALICE conferences:

[https://twiki.cern.ch/twiki/bin/view/CALICE/SiWDESY201706#Talks Papers in](https://twiki.cern.ch/twiki/bin/view/CALICE/SiWDESY201706#Talks%20Papers)

[https://twiki.cern.ch/twiki/bin/view/CALICE/SiWDESY201706#Notes\\_and\\_papers](https://twiki.cern.ch/twiki/bin/view/CALICE/SiWDESY201706#Notes_and_papers)

## Person Power (attendees to first meetings)

- LAL: R. Poehl, A. Irlles
- LLR: V. Boudry, A. Lobanov
- Kyushu U.: T. Suehara, Y. Miura, I. Sekiya

## Software packages

Software packages are placed in github. A new git-hub community has been created with the purpose of serve as official repository.

<https://github.com/SiWECAL-TestBeam>

If you are not familiarized with github, please follow the nex link: <https://help.github.com/>

Everyone can clone a repository and modify it locally as he/she wish without a github account. Ideally, everyone should have one account and:

- Fork the repository in his/her own profile (can be done in the webpage, going to the official repository and clicking the green button that says fork)
- clone this repository locally in his/her computer and do all modifications locally: i.e by typing, in the command line:

```
=git clone https://github.com/user/SiWECAL-TB-analysis=
```

- push the changes to his/her own repository:

```
git commit -m "summary of changes" git push
```

- Finally, asking for a pull request. Again, this can be done using the graphical interface in the webpage going to the official repository and clicking in "pull request"

In this way, someone else from the Analysis group will need to validate your modifications and we will be able to keep track of all updates.

Two packages are created in the github community:

## **tpecal package (commissioning)**

Here, <https://github.com/SiWECAL-TestBeam/tpecal> It is meant for commissioning and was also used as monitoring tool before the pyrame monitoring tool was developped. More info in : <https://twiki.cern.ch/twiki/bin/view/CALICE/SiWDESY201706#Commissioning>

## **Main analysis package**

<https://github.com/SiWECAL-TestBeam/SiWECAL-TB-analysis>

This package is divided in different subfolder:

- Main folder: Data conversion, merging and event building. Instructions to run: <https://github.com/SiWECAL-TestBeam/SiWECAL-TB-analysis/blob/master/README.md>
- singleslab: Root scripts for single slab analysis (pedestal and MIP calibration studies). Instruction in <https://github.com/SiWECAL-TestBeam/SiWECAL-TB-analysis/blob/master/singleslab/README>
- proto: Root scripts for analysis of event built data files. Instructions in <https://github.com/SiWECAL-TestBeam/SiWECAL-TB-analysis/tree/master/proto/README> (to be added)
- And several folders with lists of: masked (channels), pedestals and mip values

## **Data Access, Run Summary and Configuration**

- Data Access
- Run Summary and Detector Configuration

## Acknowledgements in Publication & Presentations

Text to be added:

- DESY: User groups are expected to publish results related to their DESY Test Beam Access with the following acknowledgment text:

"The measurements leading to these results have been performed at the Test Beam Facility at DESY Hamburg (Germany), a member of the Helmholtz Association (HGF)".

- AIDA-2020 TA: <http://aida2020.web.cern.ch/science/publications>

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