



AGH UNIVERSITY OF SCIENCE
AND TECHNOLOGY

Raport from the Hardware Working Group

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Main Objectives

- The Main Hardware Goal is to build a prototype of Compact Multilayer FCAL Detector
 - Within the AIDA-2020 project, up to mid-2019, important part of this objective should be achieved
- Proceeding with various hardware R&Ds: on sensors, ASICs, mechanics, alignment, DAQ, back-end electronics, ...
- Test-beam preparation and data analyses – topic shared with Software&Analyses group...



Expressed interests

Reminder – any change/update ?

- PUC (Angel); ASICs for BeamCal; ~1 FTE
- SLAC (Bruce); Sensors, radiation damage; ~1 FTE
- ISS (Titi); Testbeams&Analyses, Sensors; ~1 FTE
- CERN (Konrad); Mechanical structure; ~1 FTE
- IFJPAN (Leszek); LumiCal sensors, Laser alignment; ~2 FTE
- JINR (Georgy); Tungsten, BeamCal sensors; ~2 FTE
- TelAviv (Itamar); LumiCal sensors, Testbeam&Analyses, DAQ; ~2 FTE
- DESY (Wolfgang); BemCal sensors, Testbeam&Analyses, conn., ~2 FTE
- AGH-UST (Marek); ASICs for LumiCal, testbeam&analyses, ~3 FTE



Summary of meetings held

Technical info

- Frequency - changed - now every 4 weeks
- 5 meetings from the last (October 2015) FCAL Workshop – in total 20 meetings
- Duration – changed – now limited to 1.5 hour max
- Participation – good – always more than 5 persons

Please note that in addition to HWG and S&AWG meetings there are also dedicated meeting focused on TB2015 data analyses (Yan)...

Summary of meetings held

Topics and presentations:

- Update on new LumiCal readout ASIC, Marek Idzik
- FCAL integration in ILD, Sergej Schuwalow
- Update on radiation damage studies, Bruce Andrew Schumm
- Calibration of thin LumiCal module. Sharing of works for 2015 TB analyses, Oleksandr Borysov
- Status and results of cosmic muon calibration run with APV-SRS, Oleksandr Borysov
- Status of the Moliere radius measurement from the 2014 data, Itamar Levy
- Analyses of 2015 TB data, Yan Benhammou
- Correlations and CM correction in TB2015 data, Oleksandr Borysov
- Geant4 simulations of the 2015 TB, Alina Neagu
- Radiation detectors based on 4H semi-insulating SiC, Szymon Moszczynski
- The LHCAL MC simulation. Linearity and energy resolution, Vladyslav Lukianchuk

Various other subjects have been discussed during the meetings



How are we going with main Objectives ?

- The Main Hardware Goal is to build a prototype of Compact Multilayer FCAL Detector
 - Within the AIDA-2020 project, up to mid-2019, important part of this objective should be achieved
- Sensors: Development of thin sensor module proceeds well (we will probably hear something from Yan, Itamar, Sasha...)
- ASICs: new LumiCal readout in progress (my talk later...)
- Back-end electronics: ?
- Mechanical frame: exists
- Tungsten plates: we have a set of good plates, ongoing works at JINR (Mikhail's talk...)

How are we going with main Objectives ?

- Proceeding with various hardware R&Ds: on sensors, ASICs, mechanics, alignment, DAQ, back-end electronics, ...
 - radiation hardness studies (Bruce – talk later...), SiC proposal (Szymon – to be discussed...)
 - ILD detector: FCAL integration in ILD (Sergej), LHCAL studies (Vlad)
 - Not discussed recently (there were not many HWG meetings): edgeless sensors for LumiCal, sensors for BeamCal, interconnection technologies, ASICs for BeamCal, etc. - but some of these subjects will be discussed here...

How are we going with main Objectives ?

- Test-beam preparation and data analyses
 - TB 2014
 - Shower deposition studies completed
 - Moliere radius (Itamar later..)
 - Raport/paper – to be discussed during the Workshop
 - TB 2015
 - Analyses ongoing - data cleaning, calibration with cosmic muons, MC...(Yan, Sasha, Alina) - discussed in parallel in detail in Yan's meetings

Conclusions

- We are moving forward - at what speed ?
 - We have regular discussions - important
 - The progress is different for various subjects, but hardware development needs time
 - Of course there are usual issues lack of man-power, funding, etc...

Thank You for Attention

Questions, comments, proposals ?