



AGH UNIVERSITY OF SCIENCE
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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
 - With the success of AIDA-2020, for the next 4 year, this objective has quite precise definition in the AIDA-2020 proposal
- Proceeding with various hardware R&Ds: on sensors, ASICs, mechanics, alignment, DAQ, back-end electronics, ...
- **Test-beam preparation and data analyses**



Expressed interests - reminder - any 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

Number of meetings from the last (March) FCAL Workshop – 8 between April-September 2015 (in total 16 meetings)

Frequency - in average every 3 weeks – seems good (at least to me) !

Participation – (I have never counted people...) but there were always significantly more than 5 persons and the meetings were usually too long (>1.5 hour) – my impression is that the meetings are useful for FCAL (this does not mean that they can not be even more useful...)



Summary of meetings held General info

Topics and presentations:

- Test-beam analyses ~15 presentations
- Test-beam preparations ~ 10 presentations
- Other subjects
 - New sensor&readout – 1 talk
 - LHCAL – 1 talk

Nr of presentations: TAU ~10, AGH-UST - 4, DESY – 4, Vinca – 4, IFJPAN – 2, ISS – 2, CERN – 1, Kiev/DESY – 1

This summary is not complete because various presentations on TB analyses and TB preparation were given at Tracking WG.

Summary of meetings held Ongoing hardware activities

During last 6 months more than 90% of the time was devoted to:

- Test-beam analyses
 - where we are now ? Should and will be discussed during the Workshop.
 - Certainly a very good result is that MC simulations are done at ISS&TAU&Vinca in parallel to data analyses done at AGH&ISS&TAU
- Preparations of the just finished test-beam.
 - The first prototype of thin sensor module has been developed and used in TB!
 - We should hear about the TB during the Workshop

Other subjects (ASICs, new readout, sapphire sensors, radiation hardness issues, DAQ) were a bit “forgotten” recently, but it is true that the meetings were already rather long (>1.5 hour)

Now, with the TB finished, we should probably come back to see the status of various “hardware” activities...

- A lot of work ahead of us
- I hope our HWG meetings are making / will make this work more efficient

*Questions, proposals ?
Lets discuss...*

Introduction

Fields of interest

- Main Detector Components
 - Sensors
 - BeamCal (GaAs, Diamond, Silicon, ...)
 - LumiCal (Silicon, Sapphire, ...)
 - ASICs
 - BeamCal
 - LumiCal
 - Back-end Readout Electronics (FPGA based)
 - DAQ
 - Mechanics
 - Alignment
- Testbeams
 - Preparation
 - Data analyses
- Other ... ?