

Micromegas SDHCAL Project overview

CALICE DESY meeting, 21st of March 2013

M. Chefdeville on behalf of the CNRS/IN2P3/LAPP group

Micromegas project overview

| | |
|------------|---|
| 2006-2009: | Construction and test of small chamber with charge readout |
| 2009-2012: | Construction and test of large chamber with semi-digital readout Conception of its readout system (CALICE intermediate DAQ, DIF, firmware) |
| 2013-....: | <u>Optimisation of large chamber design for lower cost</u> + integration of services |

Publication of testbeam results

Reference paper summarising small chamber results

MICROMEGAS chambers for hadronic calorimetry at a future linear collider, 2009 JINST 4 P11023

Future papers in 2013-2014

1. Construction and functional tests of a 1x1 m² Micromegas chamber (written, to be submitted soon)
2. Performance to MIPs, pions showers, spark rates...
3. Response to pions inside SDHCAL: longitudinal profiles for 3 thresholds, MC comparison and compensation...
4. *Performance of small size resistive detectors (we don't have the data yet!)*

R&D in 2013

Resistive detectors to reduce the number of passive component on PCB

→ simulation and prototyping on-going, test beam at DESY planned in July 2012

R&D in 2014-2015

Reduced activity w.r.t. previous years, technician, engineer and physicist participation lowered

R&D on single mesh large size chambers

→ find a new mechanical design and possibly apply it to a large chamber that could be beamtested in 2015

Analysis efforts (SDHCAL testbeam uM & RPC + Monte Carlo)
will be maintained 2013-2014

We have developed a beautiful detector and have relevant R&D plans for the next 2 years
Longer term group activity will depend on the fate of a linear collider
For now: wait and see.