

LCTPC Collaboration meeting
DESY, 30/05/2014

Status and outlook of the Micromegas modules

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History of Micromegas data taking

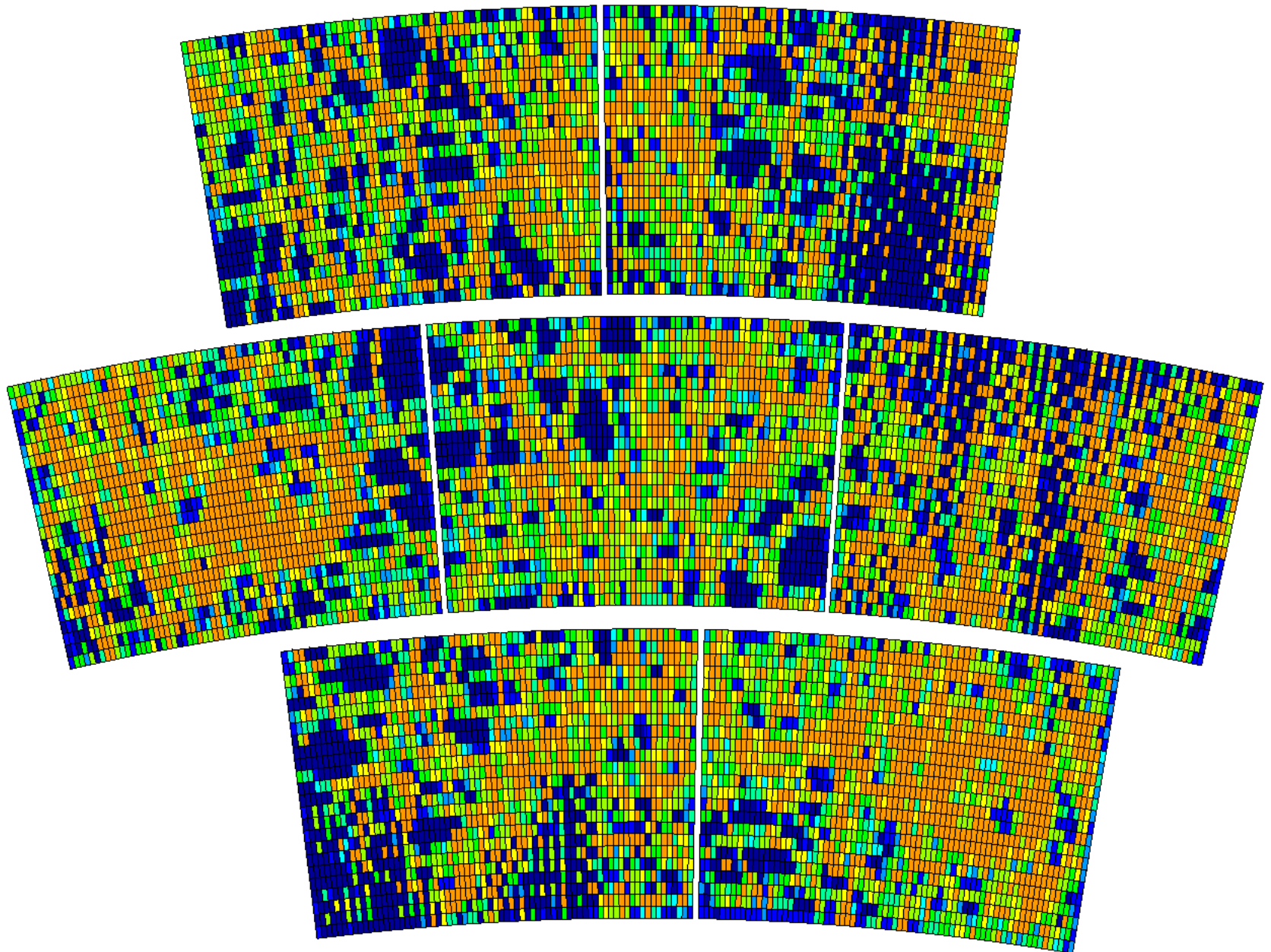
Micromegas tests

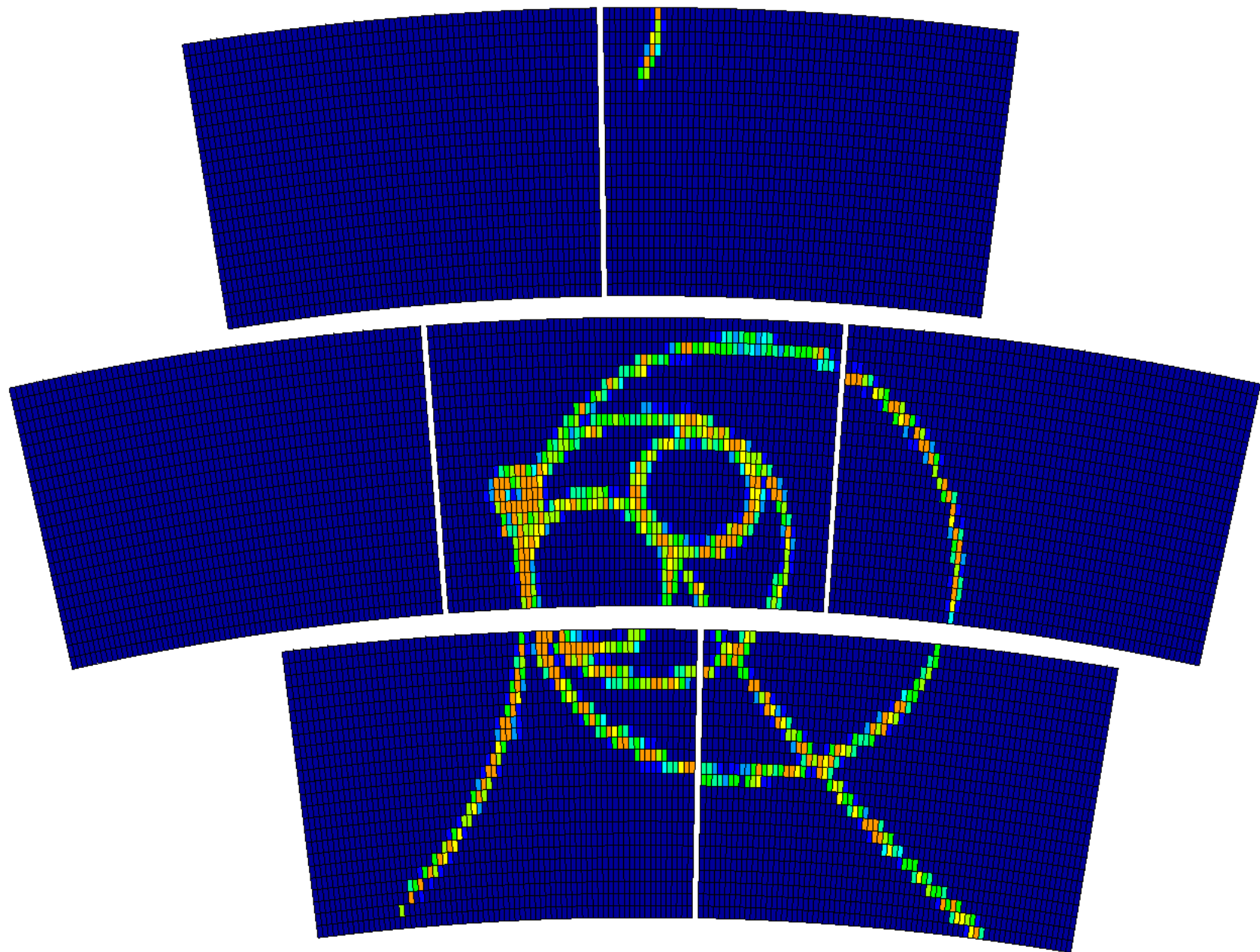
- July 2008 : Installation of the SiPM trigger
- Oct. 2008 : Commissioning of the SiPM trigger
- Oct. 2008 : tests in the gasbox of a standard anode (non-resistive, module 1), CERN routing, run 133 with P5
- Switch to resistive (C-loaded kapton, module 2) runs 134-141 with P5, runs 142-146 with T2K gas
- Nov. 2008 : mount standard module + T2K electronics on the TPC. Runs 148-217. Switch to resistive anode Runs 218-279 (beam and cosmics)
- Dec. 2008 : B=1T Runs 281-469
- Z scans, but the only way was to slide the TPC in the magnet, thus the field was not uniform for large drift distances. Pub in TIPP.

Micromegas tests

- March 2009. New electronics allowing shaping bypass (M. Dixit's request)
- May 2009. Runs 471-565 with standard pads, Runs 566-624 with resistive anode.
- June 2009. First Laser run. Runs 625-653
- August 2009. Second laser run, with standard pads. Runs 659-771
- October 2009. Tests at CERN with the gasbox
- November 2009. Si envelope tests. Runs 800-821
- December 2009. Runs 900-986. Comparison module 4 (CERN routing, runs 900-924) and module 5 (Saclay routing, 929-986) both with Carbon-loaded kapton.

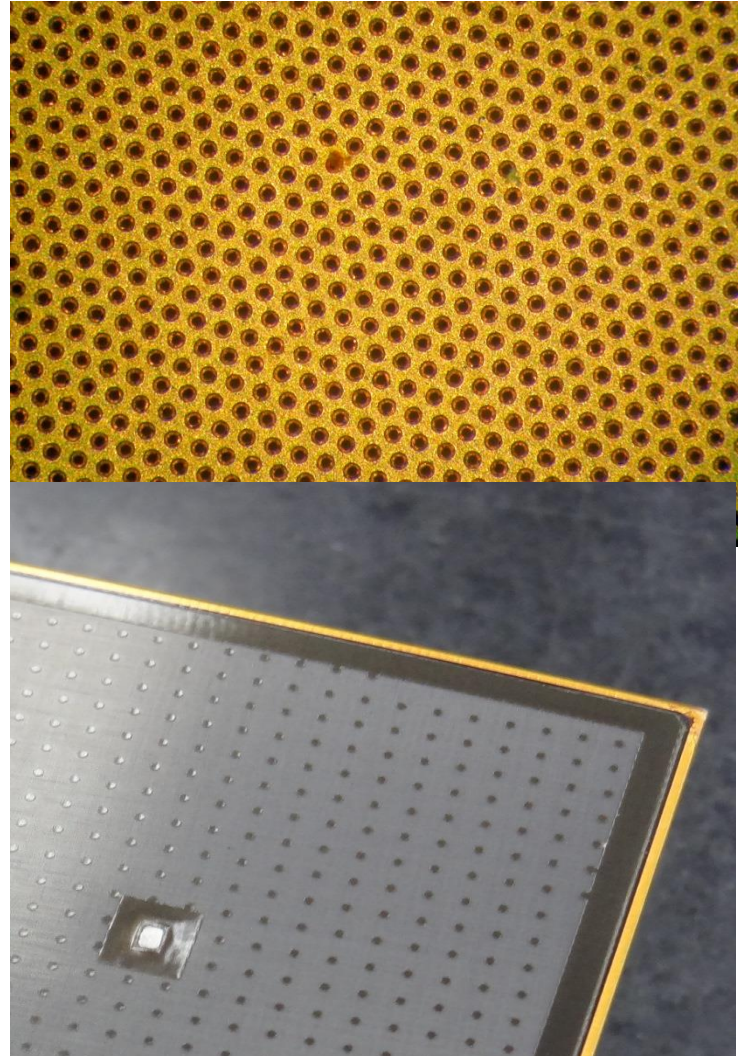
- March 2010. Module 3 (resistive ink) Runs 1003-1059. Module 2 (Carbon-loaded kapton) runs 1060-1115. Those runs were used for the resolution 'final' analysis.
- June 2008 data taking at CERN with high-intensity pion and muon beams
- Nov. 2010 : 1st Octopuce test.
- May 2011 Commissioning of 1 module with new electronics. Apparent x-talk problem, data not usable (runs 1070-1412)
- Build 10 modules in 2011-2012
- July 2012 Pilot run with 6 modules. Runs 2000-2204
- Jan-Feb. 2013 7-module data taking. Runs 3000-3230
- Feb. 2014 7-module with 2P CO2 cooling. Runs 4000-4110
- Laser tests runs 4111-4156
- March 2014 : 5 modules + 2 octopuces



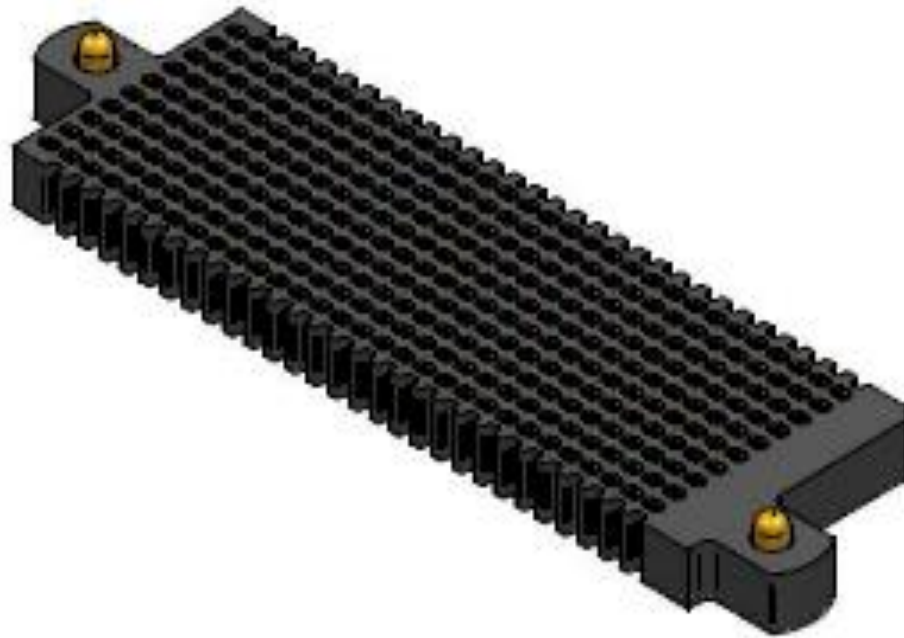


Improvements in progress

- New mesh (developped for MIMAC DM TPC): metallized and thinned 17 micron GEM.
- New resistive foil (Diamond-like Carbon, « black diamond, from RD51 Japan, Ochi).
2 modules in preparation
- Re-design the resistive foil grounding to mitigate distortions at the edges (set the guard ring to the mesh voltage or leave it float)



- Improve the pad connections. Try new connectors, improve mechanical fixation of the FECs



- Try new versions of AFTER-based electronics (AGET, DREAM)

Next step: Larger module with smaller pads

- About 40x40 cm² module
 - Which electronics?