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# ICEPP MicroMegas Activities

# General Information

- National Meeting Time : Weekly Thursday 10:00-12:00(CERN), 17:00-19:00(Tokyo) : Meeting agenda
  - ◆ Mailing list (ICEPP) : icepp-micromegas@cernNOSPAMPLEASE.ch
- CERN MicroMegas meeting : Tuesday 16:00-(CERN)
- Mailing list (CERN) : atlas-muon-micromega@cernNOSPAMPLEASE.ch, hn-atlas-muonsw@cernNOSPAMPLEASE.ch, atlas-muon-NSW-elx@cernNOSPAMPLEASE.ch, atlas-muon-micromegas-simulation@cernNOSPAMPLEASE.ch
- Members (Tokyo Univ, ICEPP) :
  - ◆ Stuff
    - ◇ T. Masubuchi (2013-)
    - ◇ Y. Kataoka (2011-)
    - ◇ T. Saito (2014-)
    - ◇ T. Kawamoto (since long time ago)
  - ◆ Students
    - ◇ S. Terao (2013-)
    - ◇ M. Yamatani (2014-)
    - ◇ T. Yamazaki (2014-)
  - ◆ Old members
    - ◇ Y. Kawanishi (2012-2014)

# Activity

## ICEPP-Kobe Joint meeting

- 1st meeting (2014 June)
- 2nd meeting (2014 July)
- 3rd meeting (2014 August)
- 4th meeting (2014 Sep)
- 5th meeting (2014 Nov)

## Beam test (in Japan)

### Chamber (made in Japan)

\* 10cm\*10cm small chamber for test

Type	Resistive strip type	Resistive strip pitch	Amp. gap	Mesh
J1/J2	Print Screen	400um(Ladder structure)	100um	Fix
J3/J4	Sputter	200um(Ladder structure)	128um	Fix
J5/J6	Sputter	200um(Ladder structure)	128um	Removable
J7/J8	Sputter	400um(Ladder structure)	128um	Removable

### mmdaq set up etc

### Kobe Neutron beam test (2013.6)

- Aim of beam test
  - ◆ spark tolerance with new chamber
  - ◆ study of neutron/gamma separation and neutron flux with liquid scintillator
- beam test log : Log file
- beam test data SRS (Run 285-750) : ~kataoka/maxi82/mm/2013/icepp/APV25\*\* (CERN)
- beam test data camac : ~kataoka/maxi82/mm/2013/camac/data (CERN)

### Spring8 LEPS electron beam line (2013.11)

- Aim of beam test :
  - ◆ Position/timing resolution with charged particle
  - ◆ Angle scan and HV scan, comparison of angle/position resolution with microTPC mode
- beam test log : Log file
- beam test data SRS (Run 763-1318) : ~kataoka/maxi82/mm/2013/icepp/APV25\*\* (CERN)
- beam test data camac : ~kataoka/maxi82/mm/2013/camac/data (CERN)

### Kobe Neutron beam test(2014.1)

- Aim of beam test : \*??
- beam test log : Log file

- beam test data : ~kataoka/maxi82/mm/2013/icepp/APV25\*\* (CERN)

## Kobe Neutron beam test(2014.7)

- Aim of beam test :
  - ◆ Study of spark rate depending on beam current
  - ◆ Cosmic data taking under the neutron background environment
- beam test log : Log file
- beam test data SRS (Run130-208) : ~kataoka/maxi82/mm/2014/icepp/APV25(or APV25.processed3) (CERN)
- beam test data camac ::?

## Beam test (in CERN etc.)

### Preparation and Requirement

#### Dosimetry

1. Regular dosimetry (long term)

- Requirement : CERN ID, level 1&2 safety course, radiological safety course (F), medical certificate

1. Short term (temporary) dosimetry : Only once per year (max. 2 months)

\* CERN ID, level 1&2 safety course

#### Safety course

- level 1&2 Link
- Radiological safety training EDH->Training Catalogue->Safety

#### Before test beam shift

- Access Request in EDH (Select your shift area,(e.g. Blg.887 H6 and 0157-R-012))

## Chamber in CERN beam test

Type	Resistive strip type	Resistive strip pitch	Amp. gap	Drift gap	Mesh	Comment
T2	Print Screen	400um	128um?	5mm		Similar to Jx chamber?
Tmm2/3/5/6	Print Screen	250um	5mm	?	Fix	Used for telescope in test beam, XY 2D readout (X readout is in parallel with resistive strip)
TQF	Print Screen	400um	?	5mm		Resistive foil and read-out has been mis-aligned (normal, +1dgee, -2 dgree, half-pitch shift)
ExMe	Print Screen	400um	?	5mm		Mesh opening window, diameter difference
MSW1	Sputter	415um	128um	5mm		MicroMegas for Small wheel
MSW2	Sputter	415um	128um	5mm		MicroMegas for Small wheel

## CERN beam test DAQ set up and how to run

- Run SRSDCS\_1.5.4 from desktop
  - ◆ connect the system to the FEC 10.0.0.14  
(/home/dateuser/Desktop/MMs\_30sept\_2014\_DAQ/config/XXXXX), load configuration file sdc\_FEC\_14.txt
  - ◆ open SRSDCS program and connect to the 10.0.0.14, apply the external trigger and enable the data acquisition
- Starting the program
  - ◆ ./mmdaq3\_server (/home/dateuser/Desktop/MMs\_30\_sept\_2014\_DAQ/mmdaq3-server)
  - ◆ ./browser --online (/home/dateuser/Desktop/MMs\_30sept\_2014\_DAQ/GUI)
  - ◆ From GUI, load the config file (e.g.  
/home...../Config/TestBeam\_MMSW.../DAQ\_config.xml)
- Run (pedestal)
  - ◆ select Pedestals n Run type, check "write the file", start run (change trigger switch in rack)
  - ◆ check the quality
- Run (physics)
  - ◆ check trigger switch,
  - ◆ load pedestal file, check "write the file", then select Physics in Run type

## CERN PS(2014.8) : T9 beam line (bld. 157), 10 pi or p.

- Aim of beam test :
  - ◆ MSW : Uniformity check (HV, position scan)
  - ◆ TQF1 : Resistive foil, readout strip alignment check
  - ◆ ExMe : Pillar choice check
- Electric log book : e-log
- beam test data : lxatut01:~/kataoka/maxi82/mm/2014.cern/TestBeam\_08\_2014/data (CERN, b188) or /afs/cern.ch/user/m/muoncali/afs\_workspace/public/ (CERN afs)

## CERN PS(2014.10) : T10 beam line (bld. 157), 10 pi or p

\* Aim of beam test :

- - ◆ MSW : Uniformity check (HV, position scan)
  - ◆ TQF1 : Resistive foil, readout strip alignment check
  - ◆ ExMe : Pillar choice check
- Electric log book : e-log
- beam test data :

**CERN SPS(2014.10) : H6 beamline (bld. 887), Control room at HNA447),  
120 pi+ 10kHz; spill duration =9s**

- Aim of beam test
  - ◆ VMM1/2 chip test
  - ◆ Combined test beam with sTGC
  - ◆ Angular scan of TQF1
  - ◆ Mesh study with ExMe (70/30 vs 50/28) (open window/diameter)
  - ◆ MSW2 studies
- Electric log book : e-log
- beam test data : (to be filled)

**CERN SPS (2014.11) :**

- Aim of beam test
  - ◆ Magnetic field
  - ◆ VMM2 chip test

# **QA, QC for NSW mass production**

**Resistivity check**

**Strip pattern scan**



# Useful Info

## TDR

Technical Design Report

## ATLAS MicroMegas

MicroMegas Twiki

## Training (software)

mmdaq etc

## VMM1 info (a bit obsolete)

- [VMM1\\_Guide\\_v1](#)
- [VMM1\\_datasheet\\_v3](#)
- [Interpreting\\_VMM1\\_Data](#)

## Talk/Paper

## Link

- [Garfield++ : Simulation of tracking detectors : Link](#)
- [Geant4 : Simulation chamber geometry etc : Link](#)
- [Spice : Simulation of electronic circuit : Link](#)

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-- TatsuyaMasubuchi - 20 Oct 2014

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This topic: [Sandbox](#) > ICEPPMM

Topic revision: r11 - 2014-10-31 - TatsuyaMasubuchi



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