Status of the Series Test of MPI Chambers at LMU

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Outline

- Status
- Leak Rates
- Results from Cosmic Ray Measurements
- Chamber Valves
- BOF Chambers
23 chambers leak tested
21 chambers HV tested
20 chambers measured
18 chambers analyzed

Backlog
- BOS5A16 (bad data quality, to be remeasured in CW 20)
- BOS3C04 (shifted positions)
- BOS3C06 (shifted positions)
- BOS3C16 (shifted positions, leak test ML1)
25 chambers leak tested (re-measured: BOS5A16, BOS3C06)
- 1 tube disconnected from gas system and HV
  BOS5A16 — ML1, Layer 3, Tube 70: cracked endplug
- 1 tube disconnected from HV
  BOS3C06 — ML2, Layer 2, Tube 17: broken wire
25 chambers HV tested (re-tested: BOS5A16, BOS3C06)
25 chambers measured (re-measured: BOS5A16)
23 chambers analyzed

Backlog
- BOS3C06 (shifted positions, will be measured next)
- BOS3C04 (shifted positions)
- BOS3C16 (shifted positions, leak test ML1)
Leak Rate Meas.

Allowed Leak Rate: 0.68 mbar/d

Most chambers meet ATLAS requirements

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Chamber Homogeneity

Maximum Drift Time

Very good agreement between multilayers
Preliminary Results (1)

Multilayer y-Distance

RO Side

HV Side

Mean: -6.9 (-4.8) µm
RMS: 29.4 (17.1) µm

Mean: -4.0 (-2.7) µm
RMS: 22.2 (10.5) µm

N.B.: Error bars denote (3 × error) and single tube RMS spread
Preliminary Results (2)

Multilayer z-Displacement

RO Side

HV Side

Mean: 6.8 (16.2) μm
RMS: 49.2 (37.2) μm

Mean: -25.8 (-16.0) μm
RMS: 30.9 (21.2) μm

N.B.: Error bars denote (5 × error) and single tube RMS spread

Mean: 6.8 (16.2) μm
RMS: 49.2 (37.2) μm

Mean: -25.8 (-16.0) μm
RMS: 30.9 (21.2) μm

N.B.: Error bars denote (5 × error) and single tube RMS spread

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Preliminary Results (3)

Layer Tilt around x-Axis

RO Side

HV Side

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Chamber Valves

- New 9 cm tubes work
  - ✔ Inside chamber envelope
  - ✔ No interference with reference RasNik system
  - ✗ A bit harder to connect for us

- New connection scheme seems to work
  - VA tubes
  - Brass nut
  - VA ferrules (instead of brass)

Should be mounted on all chambers from now on
All 4 chambers have been tested, but...

- **BOF1A12**
  - Disconnect 4 tubes with cracked endplugs
  - MECCA test (possible use of contact spray on RO hedgehog cards)
  - Check NTC sensors

- **BOF1C12**
  - MECCA test (possible use of contact spray on RO hedgehog cards)
  - Check NTC sensors

- **BOF1C14**
  - Re-check tubes with intermittent noise:
    - ML 2, Layer 1, Tube 5 (crosstalk on Tube 6)
    - ML 2, Layer 2, Tube 5 (crosstalk on Tube 4)

Need to exchange valves on all 4 chambers