AT-TPC Prototype Chamber Status & Electronics

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Prototype Chamber Status

Two sheets of GEMs (10x10 cm²) were mounted.

1. Leak test
   - Vacuum level ~ 0.1 Torr with a rotary pump
   - ~ + 0.5 Torr/30 min (with switching off the rotary)
   - ~10⁻⁸ cc/sec (with He leak detector)
     → No large leak sources
   - Nylon outgass → Same order of pressure increase

2. HV + P10 (0.5 ~ 1.0 atm) + ⁵⁵Fe(6 keV X-ray)
   - Signal was observed.
   - Gain vs GEM differential voltage
     → g = ~ 10⁴ at nominal voltage
     → The dependence is roughly consistent with a literature
Prototype Chamber Status

Gemm test P10 21 April 2009

- gain[500Torr]
- gain[680Torr]
- gain[300Torr]
1. FemStuc (T2K reading electronics)
   • CEA-Saclay
   • F. Druillole & E. Pollacco will arrive and install the system during 2-5th of June.
Options:

1. Test the GEM with flammable gases (isobutane, H).
   - Safety issues (1st meeting in next week?)

2. Develop the localization procedure (GEM+P10)
   - Read-out circuit

3. Test the Micromegas (P10)
   - Installation of the detector