Testbeam Area T24/1
&
Activities of FLC TPC group

Ralf Diener
LCTPC WP Meeting 166, Jan. 10 2013

- First half year of 2013 quite full; preliminary, tentative schedule

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Jan	no beam																												Saclay MM		
Feb	Saclay Micromegas											Ext T24/1													DESY						
Mar	DESY			no beam				DESY GEM T24/1																		Bonn Octoboard					
Apr	Bonn Octo.														no beam								Ext T24/1								
May	ExtT24/1			Ext T24/1							GridPix							Ext. T24					no beam								
Jun			Ext. T24															Ext. T24													

- This also means:

  - Not much time to fix/install/adjust things and bound manpower

- → bigger infrastructure items at testbeam have to be pushed to second half of 2013 (even if T24/1 isn't used, the hut is occupied by users of T24)

- Ties Behnke: head of group

- Astrid Münnich: Software, analysis, supervision...

- Ralf Diener: Testbeam, infrastructure...

- Volker Prahl (part time): Engineering (testbeam, LP & ILC TPC), testbeam, safety...

- Robert Volkenborn (part time, leaving soon): Engineering, testbeam...

- Bernd Beyer (part time): Mechnical designs and construction...

- Vitalij Peer: Technician, mechanical construction...

- Dörte David: Electric/electronic work incl. software (e.g. movable stage, interlock)...

- PhD students:

  - Klaus Zenker: GEM amplification / ion backflow measurements and detailed simulations...

  - Felix Müller: GridGEM LP Module, analysis...

  - Isa Heinze (finishing soon): Pathfinder track finder & analysis...

  - Stefano Caiazza (finishing soon): Analysis...

- Oliver Schäfer (part time, Uni Rostock): Slow control system (hard- & software)...

- Work further on movable stage:
  - Working: new interface, external position measurement...
  - Todo: calibration, end switches, electrical rack, slow control integration...
- Module mounting tool:
  - Assembled
  - Todo:
    - Testing & fine adjustments
    - Alignment/positioning between end plate and mounting tool
      (new rails for mounting table in T24/1?)

- LP HV stability modifications and tests (cathode: new gas inlet, new HV connection)
- T24/1: air conditioning hut, cabling, repairs, improvements, updates ...
- Slow Control extension
- Bigger projects:
  - New field cage, new cathode end plate
 - Silicon tracker reference?
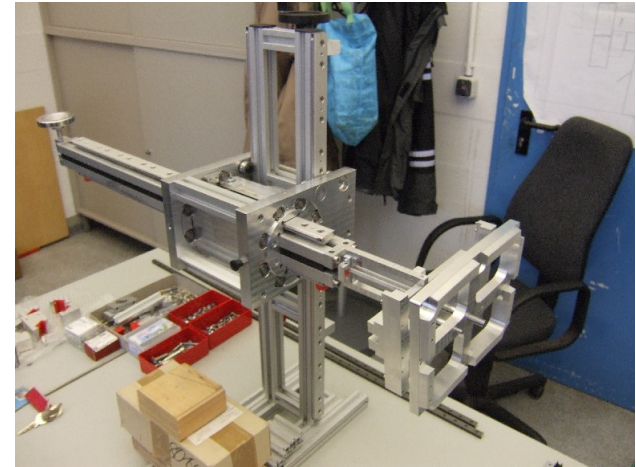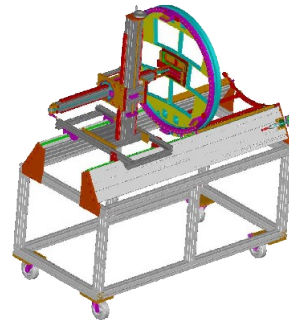
- Preparing for next test beam & data analysis ongoing

- Last test: problems with LP HV and gas tightness

- LP HV seems to be solved

- Gas thightness currently under test:

  - Current tests with additional glue promising

  - Plans:

    - Modify back frame for
      larger gluing area
      (from ~2mm to 3-4mm)

    - Optimize field shaping guard ring
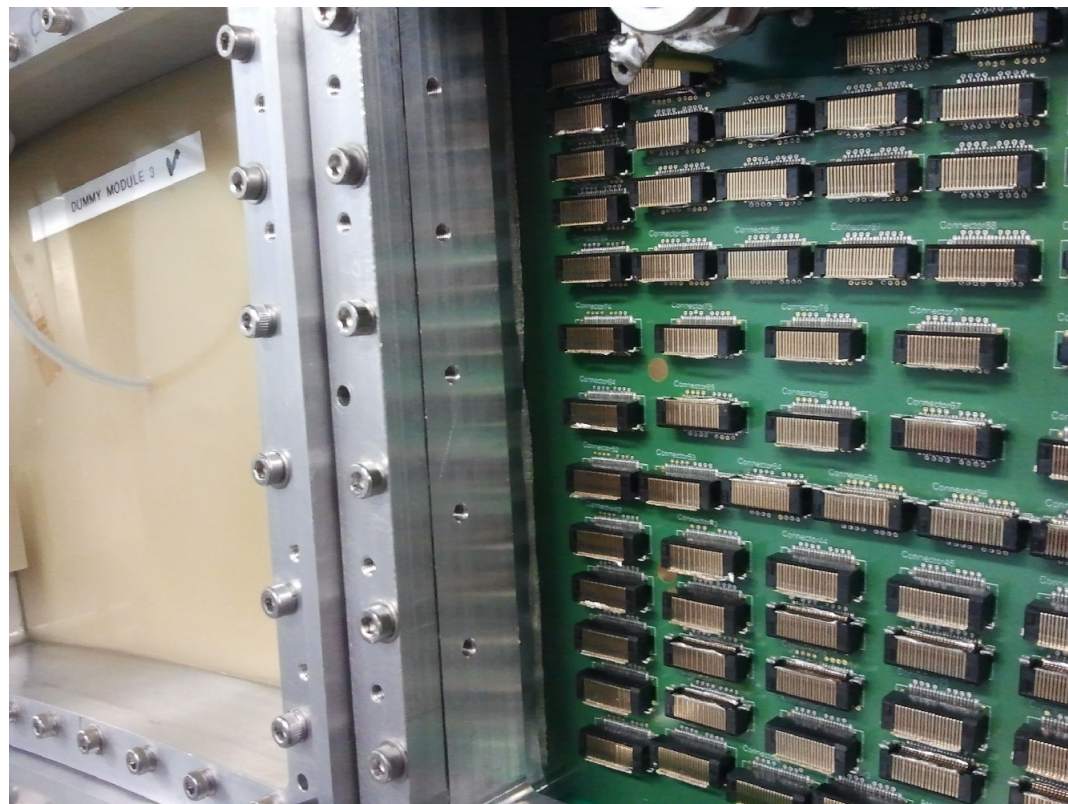
- Next test beam in February/March with 3 modules

  - Plan to have spare parts / spare module

- **Measurements of GEM amplification and ion back flow measurement**

  - Setup extended with a test chamber and fast nano-Ampere measuring devices (CUMOS) from University of Bonn (Aachen)

- **Study and optimize ion back flow**

- **Detailed simulation of GEM amplification and ion back flow**

  - Includes setup of Garfield++ / CST field simulation software framework

- **Framework also used for studies of field distortions in Large Prototype**
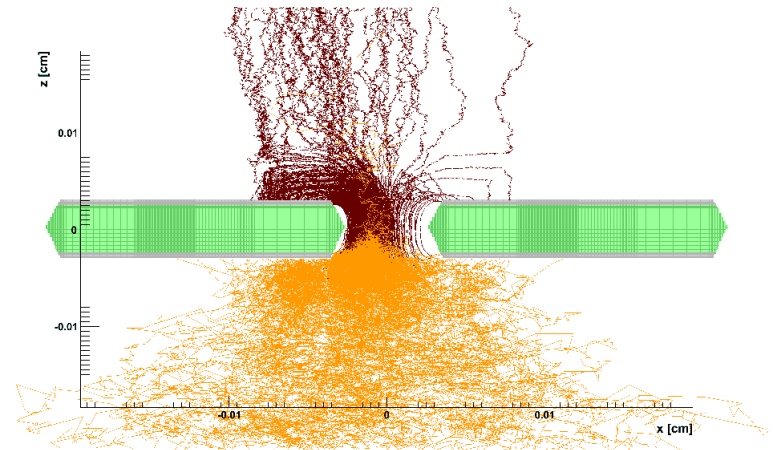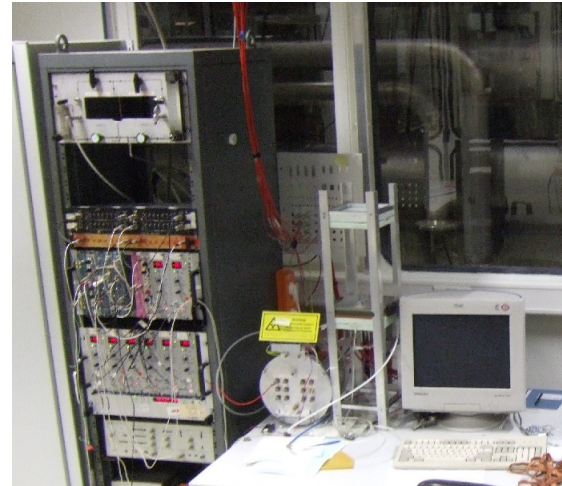
- Pathfinder track finding package is being optimized

- A new track fitting package based on a General Broken Lines fit has been developed and is being integrated in MarlinTPC

- Miscellaneous work on MarlinTPC (bug fixes, "smaller" improvements etc.)

- A fast analysis package for use at the test beam has been developed

- Documentation is being extended (wiki, notes, running examples)

- Infrastructure:

  - SVN code repository

  - Data repository in Grid (dCache)

  - Conditions database

  - MarlinTPC Wiki