TPG status and plans

# Overview

- Electronics
- Test chamber
- Experimental area
- Hexaboard
- Simulations
  - Schedule

# Electronics

- HARP-model preamplifiers
- Re-engineered chain: the preamp board connects to the Hexaboard on one side and to the FADCs on the other
  - Re-used cabling and digitizers.



# Test chamber

- Made of a small (10cm diameter) 3-GEM amplification, with a simple pad plane
- Purpose:
  - Test the prototype electronics
  - Study amplification and signal shape
  - Test-bench for the calibration
  - Preliminary studies on gas mixtures
  - $\rightarrow$  the new electronics chain is performing as expected
    - S/N
    - Signal shape
- The GEM chamber is definitely alive
- For test purposes a small drift-path field-cage is being designed.

# Test chamber



# Test chamber



20/03/2002

#### First spectra



# Hexaboard

- The design of the Hexaboard and of its supporting structures have been completed.
- Hexaboard production is starting in these days.

### Hexaboard design



20/03/2002



# HARP/TPG setup





### Experimental area

- Started 2 week ago a major operation
  - The whole HARP-TPC area is being moved 10m upstream, in the same beamline.
  - The barracks with electronics and control room will stay in place
  - The solenoid, the electronics racks have been moved
  - Cabling is being re-established and the gas system in being reconnected
  - Foreseen to be back in operating conditions by mid June, before the last round of HARP calibrations
  - HARP calibrations are expected to be completed end June at the earliest, mid July at the latest
  - From that point on, TPG installation will start.
  - The beam is confirmed in autumn.
    - → warning: exact schedule still fluctuates by a few weeks. Due to a transformer failure, the startup and operations of the PS may take longer than foreseen

### Experimental area



20/03/2002

#### PS beam schedule

PS Operation Schedule issue date: 12-May-2003

Version 1.2

(colour code: purple (dark) = scheduling meeting , light green (light) = weekend or holiday)

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Period 3A 2003 Sep 9 to Oct 2

20/03/2002

# TPG schedule

				7 Apr '03		28 Apr '03			19 May '03			9 Jun '03			30 Jun '03			21 Jul '03			11 Aug '03			'03	22	2 Sep 1
ID	0	Task Name	F	S	S	M	1   1	r V I	N   1	T	F	S	S	M	T	W	T	F	S	S	M	Т	w	T	F	S
1		Napoli: GEM signals on Legrand's electronics																								
2		Mn trigger system to Naples			Ē	i																				
3		See Mn X-rays				1																				
4		Write TDR																								
5		G.5 Rome																								
6		HARP TPC calibration with Mn source																								
7		Hexaboard in production																								
8		GEMS in production												-												
9		Electronics in production																								
10		CUBE+TPGino is ready												∎			-									
11		GEM+Hexaboard mechanics												-												
12	111	HARP test-bed move															-		_							
13		check GEM and Hexa, than TPG head assembly																								
14		Electronics test and characterization															Н									
15	<b>III</b>	TPG head + CUBE field-cage, X-ray calibration																	н							
16	111	TPG head adapter flanges																	H.							
17		Mount TPG head in HARP test-bed																			h					
18	III	DAQ/monitoring is ready																			H					
19		TPG X-ray calibration																					-	_		
20		Display/Reconstruction software is ready																				-	-	<u> </u>		
21		PS BEAM (exact dates to be confermed)																								

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# Conclusions

- Both the reduced-scale prototype and the TPG insert for the HARP TPC are progressing
- The prototype electronics is alive
- The experimental area is being re-furbished and will soon be ready again for data taking
- The Hexaboard has been designed and its production is starting.
- Beam time in September has been allocated