

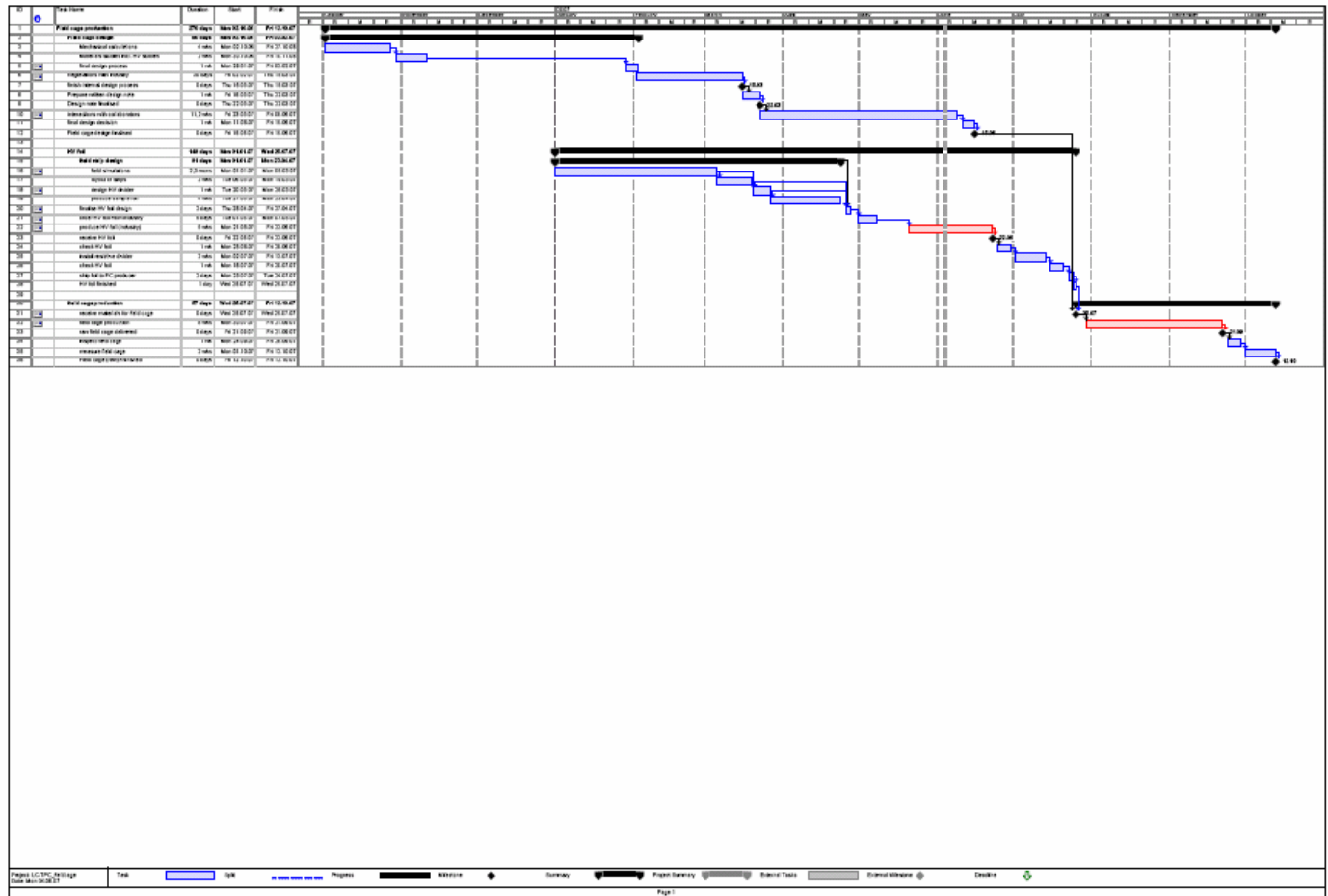
TASK LIST

General:

1. Tasks for LP1
2. Tasks for LP1.5
3. Tasks for LCTPC

TASK LIST

1. Timeschedule for LP1: EUDET done



07/11/2007

Workpackage phonemeeting#43

TASK LIST

1. Timeschedule for rest of LP1 not done!

ID	Task Name	Duration	Start	Finish	S	S	M	T
1	Field Cage	1 day?	Mon 23.10.06	Mon 23.10.06				
2	Field cage for Large Prototype	1 day?	Mon 23.10.06	Mon 23.10.06				
3	design and fabricate field cage	1 day?	Mon 23.10.06	Mon 23.10.06				
4	material for field cage	1 day?	Mon 23.10.06	Mon 23.10.06				
5	HV tests	1 day?	Mon 23.10.06	Mon 23.10.06				
6	interface field cage – endplate	1 day?	Mon 23.10.06	Mon 23.10.06				
7	gas tightness system	1 day?	Mon 23.10.06	Mon 23.10.06				
8	mechanical specifications for endplate	1 day?	Mon 23.10.06	Mon 23.10.06				
9	design field strips	1 day?	Mon 23.10.06	Mon 23.10.06				
10	HV connections to field strips	1 day?	Mon 23.10.06	Mon 23.10.06				
11	connection to mirror strips	1 day?	Mon 23.10.06	Mon 23.10.06				
12	mechanical support system for field cage in	1 day?	Mon 23.10.06	Mon 23.10.06				
13	survey (mechanical) of field cage in magne	1 day?	Mon 23.10.06	Mon 23.10.06				
14								
15	Endplate for LP	1 day?	Mon 23.10.06	Mon 23.10.06				
27	Cathode	1 day?	Mon 23.10.06	Mon 23.10.06				
33	Gas Amplification Module GAM	1 day?	Mon 23.10.06	Mon 23.10.06				
58	Laser System for LP	1 day?	Mon 23.10.06	Mon 23.10.06				
73								
74	Source based calibration system	1 day?	Mon 23.10.06	Mon 23.10.06				
80								
81	Integrated Si detector	1 day?	Mon 23.10.06	Mon 23.10.06				
86	Slow Controls System	1 day?	Mon 23.10.06	Mon 23.10.06				
96								
97	Gas System	1 day?	Mon 23.10.06	Mon 23.10.06				
109								
110	Data Acquisition System	1 day?	Mon 23.10.06	Mon 23.10.06				
126								
127	Event Display	1 day?	Mon 23.10.06	Mon 23.10.06				
132	Analysis Software	1 day?	Mon 23.10.06	Mon 23.10.06				

Project: LC-TPC-LP Date: Mon 04.08.07	Task		Milestone		External Tasks	
	Split		Summary		External Milestone	
	Progress		Project Summary		Deadline	

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TASK LIST

1. Tasklists for LP1 - Ties at Paris Eudet meeting

LC-TPC tasks and schedules

Ties Behnke, DESY

Boundary condition:

test beam at DESY (EUDET test beam) will become available August 2008

EUDET milestones:

test beam in 2008

Some remarks on the occasion of the LC-TPC meeting in LLR, 10-10-2007

Tasks: hardware

What do we need for a (successful) test beam with LC-TPC

- TPC field cage (EUNET)
- Cathode
- Endplate
- Readout module (at least one)

- Infrastructure (mounting structure, trigger, etc) (part EUNET)

- Eventually second generation systems, including Si-TPC, V2 endplate, etc etc

- DAQ (EUNET)
- Slow Control (some EUNET)
- Analysis software (some EUNET)

Tasks: software

MARLIN TPC: good progress, analysis frame exists

Data handling chain: needs to be setup

Data processing chain: need to be setup (experience from CALICE and SI-Tel:
this is not trivial)

Integration of Slow Control into the data stream

I think we are covered up to the DAQ stage, we have great progress
on MARLIN TPC, but we have no effort on the rest

Schedule I

- >Field cage: delivery to DESY: end 2007, expect is to be ready for end plate: 2/2008
- >Cathode: (simple version ready 12/08 from DESY,
how about more sophisticated versions?
Calibration issue? Source window? Laser window?
- >End plate: Cornell, delivery date ??
- >MPGD modules: KEK, Cornell, Saclay, Canada, Bonn, others? ???
- >readout electronics:
 - preamps CERN/ Lund
 - ALTRO CERN/ Lund
 - DAQ Lund/ Brussels
- >slow controls, including HV control DESY, others?

Schedule II

Integration of test beam experiment:

support structure: DESY, design on going, ready not before Q2 2008?

integration of SI detectors: DESY, SiLC, timelines are not clear to me, when can we expect what?

Magnet facility fully available and functional? DESY, KEK

Remark: we urgently need commitments by partners for the different open tasks!

TASK LIST

Project List that we worked over at the Valencia Meeting one year ago. I have updated (and somewhat simplified) it-
please cross-check!!!

Project List LP TPC, version 5

Version 1 by Ties Behnke, 23.10.2006

Version 2 for phonemeeting#12 on 25.10.2006

Version 3, revised after above phonemeeting, 28.10.2006

Version 4, revised after meetings#13 at Valencia and #14 on 15.11., 19.11.2006

Version 5, revised after meetings#31 at lcws07 to #42 at alcpg07 on 21.10.2007

Symbols: "--WIP" – work in progress

"=>" – things to be discussed or decided at Valencia and following meetings

-- results of the meetings in blue

0. Magnet

=>specify mechanics, movements -- WIP

1. Field Cage (FC) for Large Prototype

1. design and fabricate FC--WIP

-- Peter Schade is working on all aspects

=>last details with endplate/z-direction t.b.d.

2. FC details

2.1. material for field cage--done

2.2. HV tests--done

2.3. interface field cage – endplate--WIP

2.3.1. gas tightness system--done

2.3.2. mechanical specifications for endplate--WIP

2.3.3. design field strips--done

2.3.4. HV connections to field strips--WIP

2.3.5. connection to mirror strips--WIP

3. mechanical support system for FC in magnet--WIP

4. survey (mechanical) of FC in magnet

=>identify who will do this

-- DESY geometers? or MISSING?

2. Endplate for LP

1. Endplate Version 1 (LP1)

=>how many different endplates for LP1 should there be?

-- two (one for GEM, one for Micromegas) for independent preparation, different mechanical constraints etc

1.1. layout of LP1 endplate, panels, interface to field cage--WIP

=>see Dan Peterson's website:

http://w4.lns.cornell.edu/~dpp/linear_collider/LargePrototype.html

1.2. gas supply

=>discuss where the inlets/outlets should be

1.3. HV supply

=>identify who will work on this

-- this must be done by people designing/building panels

2. Endplate Version > 1

=>discuss evolution LP1~LP1.5~LP2 etc and relation to SP studies

3. Cathode

1. Layout of LP1 cathode

=>mounting of calibration devises discussed
in Item 7 below
-- is definitely wanted (see 7 below)

- 1.1. design of cathode--WIP
- 1.2. interface cathode – field cage--WIP
- 1.3. HV supply

=>identify who will work on this
-- Peter Schade

4. Gas Amplification Module

1. GEM OR MICROMEAS based gas amplification module ("panel")
 - 1.1. development of GEM OR MICROMEAS tower technology
 - =>identify groups working on this
 - German?? and Japanese (CDC) for GEM.
 - Saclay, Carleton for MICROMEAS
 - 1.2. conventional pad plane based system
 - 1.2.1. design of pad plane (optimization of pad structure)
 - =>decide pad size
 - this is up to group designing panels,
1mm x 4mm minimum
 - 1.2.2. interface GEM OR MICROMEAS-tower – pad plane
 - this is up to Dan and groups designing panels
 - 1.3. Si-pixel based system
 - =>identify GEM OR MICROMEAS-Si R&D groups to provide input:
 - Bonn, Freiburg for GEM
 - Amsterdam, Saclay for Micromegas
 - 1.3.1. TimePix development
 - 1.3.2. INGRID developments
 - 1.3.3. interface GEM OR MICROMEAS-tower – Si-chip
 - 1.3.4. development of layout for panel with GEM OR MICROMEAS/Si-readout

5. Electronics

1. Interface pad-plane – preamplifier

=>decide location connectors wrt preamp boards for LP1 electronics

-- Eudet input (Leif Jonsson) and groups building panels

2. LP1 electronics

=>discuss evolution in number of channels and the number of channels needed.

-- Recent mails from Leif Jonsson, Luciano et al: 2000 end 2007, 10000 end 2008

3. LCTPC electronics (“standard” pads) -- WIP

6. Laser System for LP

1. laser system for the LP

=>MISSING!!!

1.1. laser beams via cathode window

1.1.1. entry window in cathode

1.1.2. mirror system inside TPC

1.1.3. laser beamdump system

1.1.4. control (monitoring) system for laser beams

1.2. laser beams via anode entry

1.2.1. entry window in anode

1.2.2. conductor pattern on cathode

2. laser for the calibration system

2.1. laser control system

2.2. laser parameter monitoring system

2.3. external optical system for the laser

3. development of algorithms etc for laser based calibration systems

7. Source based calibration system

1. design of a source based calibration system
 - =>discuss mounting of radioactive source/patterns on cathode
 - =>identify who will work on these questions
 - Dean Karlen, Paul Colas
 - 1.1. design of fixed position source system
 - 1.2. monitoring of sources inside TPC
 - 1.3. design of a movable source based system
2. development of calibration algorithms for source based calibration

8. Integrated SiLC detector

--WIP

1. Si-strip detector based external alignment system
 - 1.1. design of Si system
 - 1.2. interface to field cage (mounting on outside of field cage)
 - 1.3. integration of Si into field cage mounting system inside magnet

9. Slow-Control System

=>identify who will work on slow control

=>MISSING?

1. develop a concept for the slow control system
 - 1.1. choice of hardware
 - 1.2. choice of software basis
2. gas purity monitoring system
3. gas flow control
4. environmental conditions monitoring
5. chamber conditions monitoring
6. HV control and monitoring
7. Magnet control and monitoring: interface to magnet control

10. Gas System

=>discuss type of system (mix or premix)

-- both possibilities should be allowed

=>temperature control needed?

-- no, but temp. does need to be measured

=>identify who will work on this

--=>MISSING?

1. gas distribution system
 - 1.1. input flow control
 - 1.2. output flow control, including over pressure control
 - =>decide overpressure to be used
 - 2mbar has worked well for the Star TPC
 - 1.3. interface to slow controls systems
2. simple premixed gas system
 - 2.1. control and monitoring
 - 2.2. interface to gas distribution system
3. gas mixing system
 - 3.1. development of concept for gas mixing system
 - 3.1.1. control and monitoring
 - 3.1.2. interface to gas distribution system

11. Data Acquisition System

=>identify people working on these questions

-- Lund, Bonn, Brussels

1. develop a concept for the data acquisition system
 - 1.1. hardware basis
 - 1.2. software basis
2. Run Control System for TPC
 - 2.1. develop concept for run control
 - 2.2. simple messenger based run control
3. interface to ILC software system
4. interface to/ agreement with EUDET DAQ
5. online software/ interface to offline
 - 5.1. calibration data format
 - 5.2. real data format
 - 5.3. calibration system / database
 - 5.4. raw data storage
 - 5.5. GRID integration
6. participation in ILC online event definition discussion

12. Event Display

=>identify who will work on this
-- =>MISSING?

1. online event display for LP-TPC
 - 1.1. develop concept / code base for event display
 - 1.2. graphical representation of LP
 - 1.3. interface event display to online and offline software

13. Analysis Software

=>identify who will work on this
-- Peter Wienemann and WP3 group are making good progress

1. decision on common analysis framework
2. MARLIN based analysis framework
 - 2.1. develop class structure for TPC analysis
 - 2.2. develop algorithms for TPC analysis
 - 2.3. interface to Java based framework
3. Java based analysis software
 - 3.1. develop Java based system
 - 3.2. interface to C++ based framework

14. Test Beam Experiments

1. Preparation of test beam experiments at DESY, CERN, Fermilab
--WIP
2. Interface to EUDET SI telescope --WIP
3. Particle ID in test beam
4. Trigger counters
5. movable stage for TPC/magnet in test beam =>see Item 0. above

15. Cosmic Ray Test Stand

=>WIP

1. Development of cosmic ray trigger for LC-TPC
 - 1.1. trigger counters
 - 1.2. trigger electronics
 - 1.3. interface to DAQ
2. Cosmic trigger in field cage
 - 2.1. design of trigger counters
 - 2.2. mechanical implications

16. Integration

Leader is =>MISSING!!!

Test beam, magnet, LP1 (fieldcage, cathode, anode, etc), trigger, SiLC, software (daq, slow-control, display, simulation, analysis)...

Other-than-LP1 TASKs

2. Tasks for LP1→1.5 → LP2. Example from Addendum2007:

WIP (Item 14.1)

Table 1: LCTPC R&D Scenarios for Large Prototype and Small Prototypes.

Large Prototype R&D		
Device	Lab(years)	Configuration
LP1	Desy/Eudet(2007-2009)	Fieldcage⊕2 endplates: GEM+pixel, Micromegas+pixel <i>Purpose: Test construction techniques using ~10000 Alice/Eudet channels to demonstrate measurement of 6 GeV/c beam momentum over 70cm tracklength, including development of correction procedures.</i>
LP1.5	Fermilab/Eudet(2010)	Fieldcage⊕2 endplates: GEM+pixel, Micromegas+pixel <i>Purpose: Continue tests using 10000 Alice/Eudet channels to demonstrate measurement of 100GeV beam momentum over 70cm tracklength, in a jet environment and with ILC beam structure using LP1.</i>
LP2	Fermilab/Eudet(2011)	Fieldcage⊕endplate: GEM, Micromegas, or pixel <i>Purpose: Prototype for LCTPC including gating and other options, demonstrate measurement of 100GeV beam momentum over 70cm tracklength, and in jet environment and ILC beam structure, test prototype LCTPC electronics.</i>
Small Prototype R&D		
Device	Lab(years)	Test
SP1	KEK(2007-2008)	Gas tests, gating configurations
SP2,SP3	Fermilab(2008-2009)	Performance in jet environment
SPn	LCTPC groups(2007-2009)	Performance, gas tests, dE/dx measurements, continuation of measurements in progress by groups with small prototypes

Other-than-LP1 TASKs

3. Tasks for LCTPC

LCTPC Electronics and "Advanced Endcap": WIP (Item 5.3)

Bottom line: LP1 OPEN TASKS

Open tasks for LP1 are most urgent to fill:

- Time schedule for LP1 - missing!
- Item 1. Survey of LP1 fieldcage in magnet - missing?
- Item 6. Laser System for LP1 - missing?
- Item 9. Slow control system - missing?
- Item 10. Gas system - missing?
- Item 12. Event display - missing?
- Item 16. Integration boss - missing!

The groups are requested to send me (settles@mppmu.mpg.de) changes or feedback, and possible volunteers for the open tasks...