

# WHITE PAPER THEME 3 - WP7 FACILITIES & COMPONENT ANALYSIS FOR DETECTOR R&D

## WP7 Meeting #1

Mar CAPEANS  
CERN PH-DT

# WP7

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- In the framework of the CERN Council White Paper activities, the PH Department has identified 10 strategic R&D activities which concern the development of specific expertise relevant for future projects, covering the years 2008-2011.
- WP7 is devoted to **Facilities and Component Analysis for Detector R&D** and comprises two main lines of activity:
  - ▣ *Construction of SHLC compatible GIF and hadron irradiation facilities*
  - ▣ *Component Analysis for Detector R&D (gas mixture choices and purification techniques, coolants, detector assembly materials, etc.)*
- *M.Capeans, together with C.Rembser for GIF++, lead this WP*

# WP7 Background

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- **Presentations at the PH Faculty Meeting 15Nov2007**
- *L.Linssen*: PH Common R&D Activities Overview
  - <http://ph-dep.web.cern.ch/ph-dep/InfoCommunication/FM/FM15Nov07/Linssen.pdf>
- *C.Rembser*: WP7 Part1 Irradiation Facilities
  - <http://ph-dep.web.cern.ch/ph-dep/InfoCommunication/FM/FM15Nov07/Rembser.pdf>
- *M.Capeans*: WP7 Part2 Component Analysis for Detector R&D
  - <http://ph-dep.web.cern.ch/ph-dep/InfoCommunication/FM/FM15Nov07/Capeans.pdf>

# WP7: Current Lines of Activity

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- **GIF++**
  - ▣ Contact: C.Rembser, M.Capeans
  
- **Upgrade of proton and neutron Irradiation Facilities**
  - ▣ Contact: M.Moll, M.Glaser
  
- **LHC RPC Gas Studies at the GIF**
  - ▣ Contact: R.Guida, I.Glushkov
  
- **Material Studies and Aging Test Reference Lab**
  - ▣ Contact: S.Konovalov, M.Capeans

<http://cern.ch/WP7/>

# WP7 Work Plan

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- 2008
  - Gas studies at ISR (lab facility) and dedicated GIF set-up
  - Materials DB framework and establish benchmarks (SLHC)
  - Define User Requirements for Upgraded Irradiation Facilities
- 2009
  - Consolidation of cost-effective RPC operation parameters for LHC
  - Set-up Reference Aging Lab, collect existing data on materials
  - Preparation and approval of a Technical Design Proposal for Irrad. Facilities (AB Dept)
  - Procurement and Construction Phases of Upgraded Irradiation Facilities
- 2010
  - Implement optimal filtering elements in LHC RPC gas systems
  - Deliver Material Books
  - Irradiation Facilities > Target date 'Ready for Users': May
- 2011
  - Update Material Books
  - Irradiation Facilities > First report of results

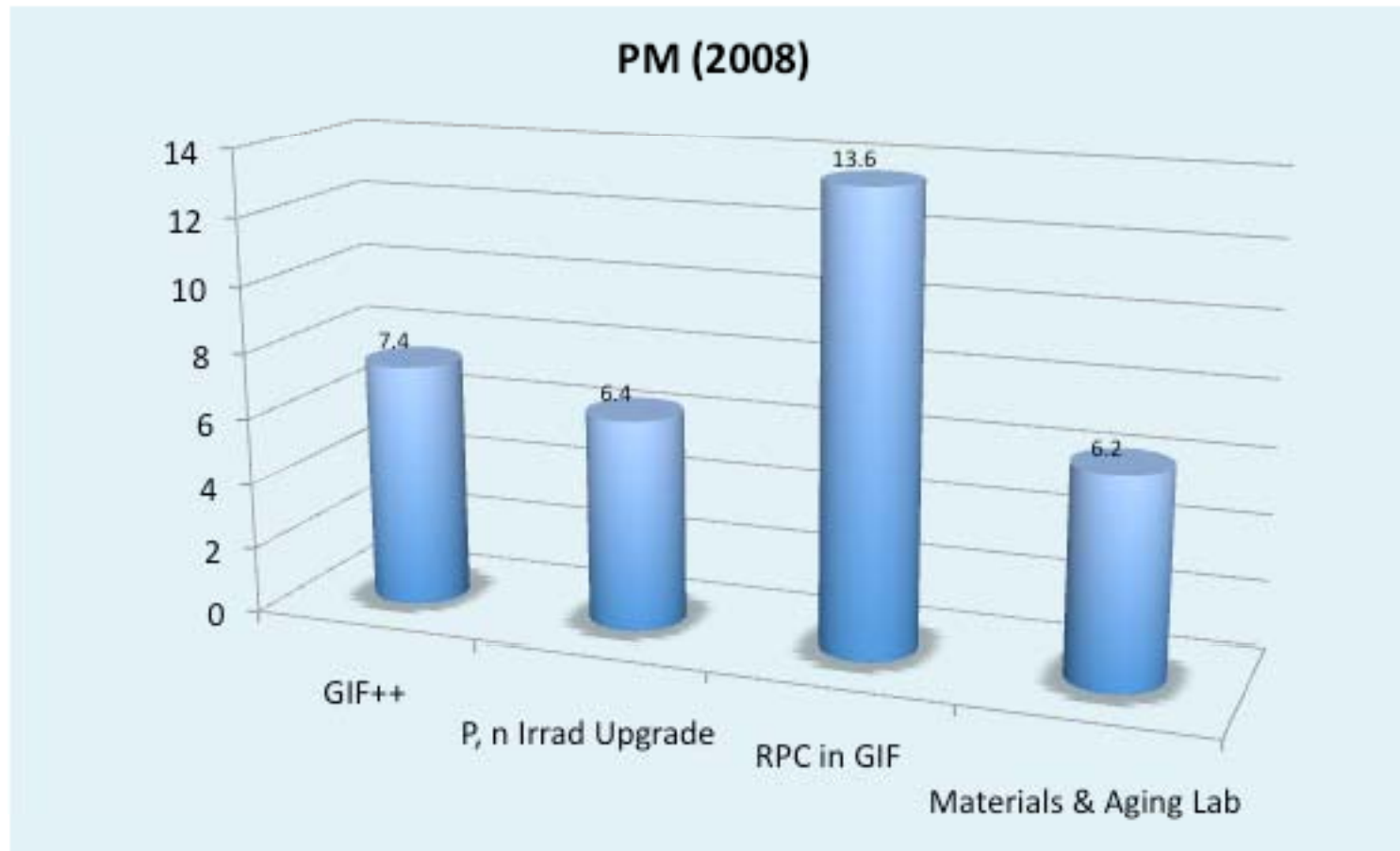
# WP7 Detailed Schedule

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- [http://cern.ch/WP7/Documents/WP7\\_Project.pdf](http://cern.ch/WP7/Documents/WP7_Project.pdf)

# WP7 H-Resources from PH (2008)

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# Outlook


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- Contact with the experiments is very important in order to keep the projects in line with the real needs of these experiments
- We will organize WP7 regular meetings (4 per year) to update you and interact – so we rely on you taking an active role in defining directions and priorities





# Agenda of Today

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## Discussion on GIF++ Technical Specifications

**Tuesday 19 August 2008**  
from 10:00 to 12:00  
Europe/Zurich  
at CERN ( 40-R-B10 )  
chaired by: *Christoph Rembser (CERN)* , *Mar Capeans Garrido (CERN)*

Material:  DRAFT - Requirements GIF++ 

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**Tuesday 19 August 2008**

- 10:00->10:15 **Introduction to WP7: Facilities and Component Analysis for Detector R&D** (Convener: Mar Capeans (CERN) )
- 10:15->10:30 **Status of current RPC studies at the GIF** (Convener: Roberto Guida (Univ. + INFN) )
- 10:30->10:45 **Results of Questionnaire about a new GIF** (Convener: Mar Capeans Garrido (CERN) )
- 10:45->11:00 **Proposal for a new GIF++** (Convener: Christoph Rembser (CERN) )
- 11:00->12:00 **Discussion GIF++ User Requirements** (Convener: Christoph Rembser (CERN) , Mar Capeans Garrido (CERN) )

# Possible Agenda for the next meeting (~3 months)

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- Progress on RPC gas studies
- Report on contacts with experiments to contribute to Materials Database
- Irradiation Facilities
  - A possible GIF++ by AB
  - Recycling old GIF components and Procurement Plan of New Infrastructure for GIF++
  - Cost Estimates

# White Paper Theme 3 R&D

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## Overview of R&D work

<i>Domain</i>	<i>Project #</i>	<i>Description</i>	<i>WP coordinator</i>
Microelectronics and optoelectronics (incl. optical link part of DAQ)	WP 1	Radiation-hard Technology and Common Building Blocks	Sandro Marchioro
	WP2-1 and WP2-3	On-detector Power Management	Federico Faccio
	WP2-2	On-detector Power management, SLHC-PP	Federico Faccio
	WP 3	Radiation-hard Optical Link for Experiments	Jorgen Christiansen
Detectors	WP 4	Radiation Hard Semiconductor Detectors	Michael Moll
	WP 5	Micropattern Gas Detectors	Christian Joram and Leszek Ropelewski
	WP 6	Interconnect Technology and Quality Assurance	Michael Campbell
	WP 7	Facilities and Component Analysis for Detector R&D	Mar Capeans (and Christoph Rembser)
Data analysis simulation and computing	WP 8	Parallelization of Software Frameworks to exploit Multi-core Processors	Vincenzo Innocente and Pere Mato
	WP 9	Portable Analysis using Virtualization Technology	Predrag Buncic and Pere Mato
Linear Collider	WP10	Linear Collider detectors	Lucie Linssen