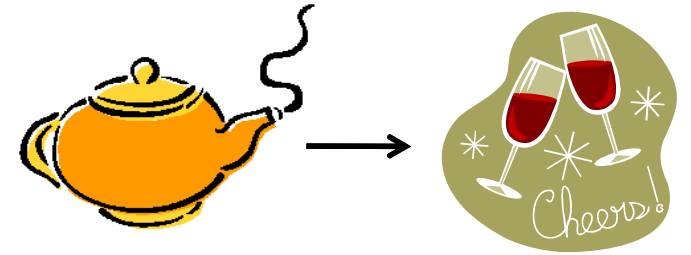




DT2 Group Meeting

- Status of projects
- Information
- DT Reorganization



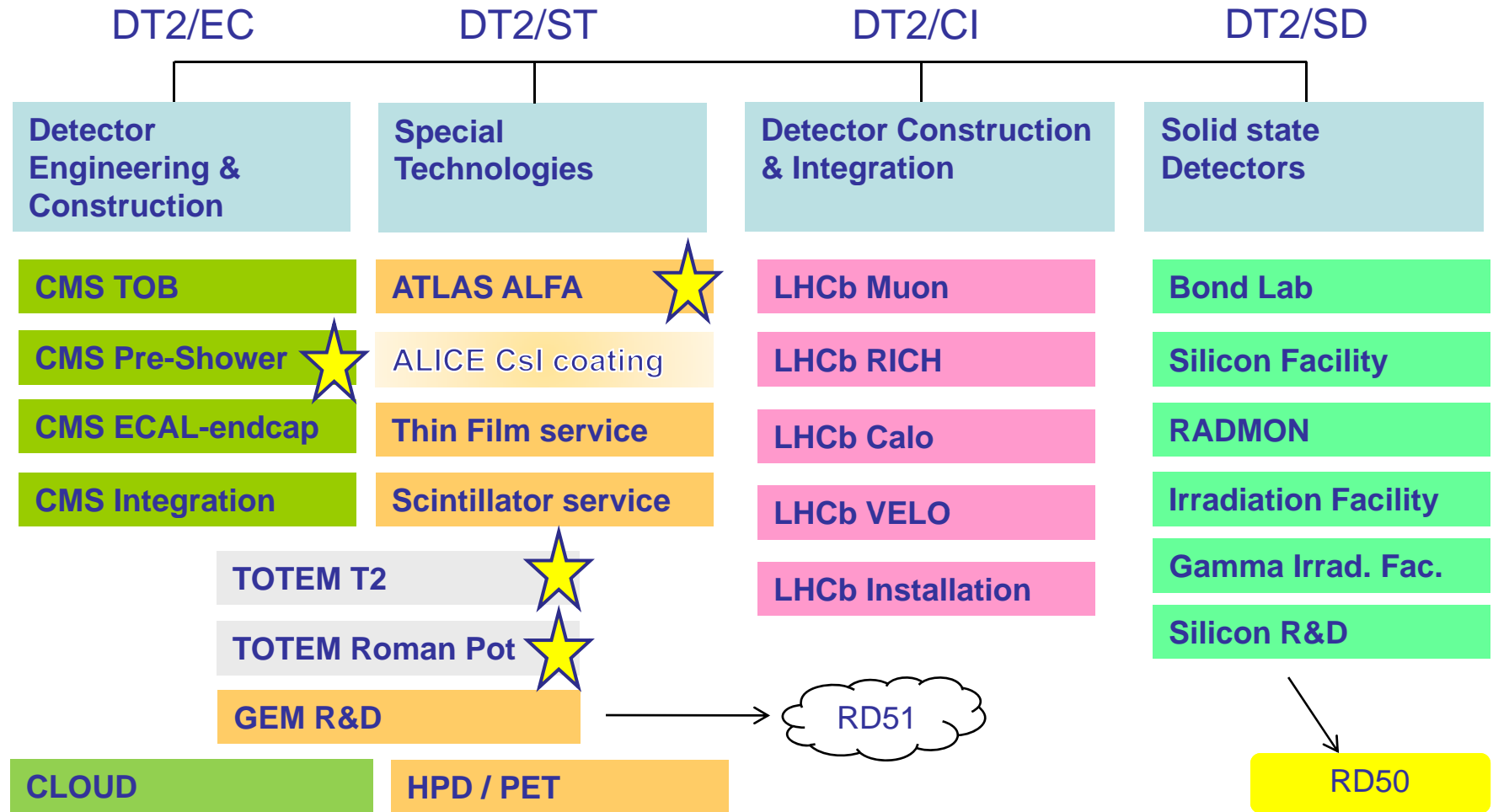
15 February 2008

Antti, Burkhard, Christian, Michael

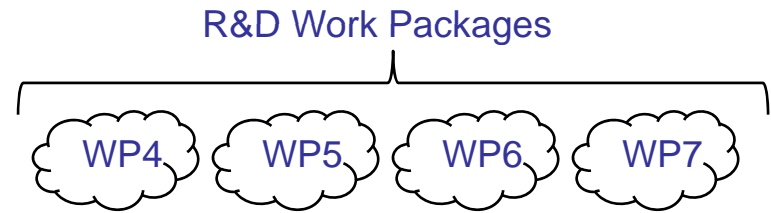
CJ

CJ

DT2 Overviews of Activities

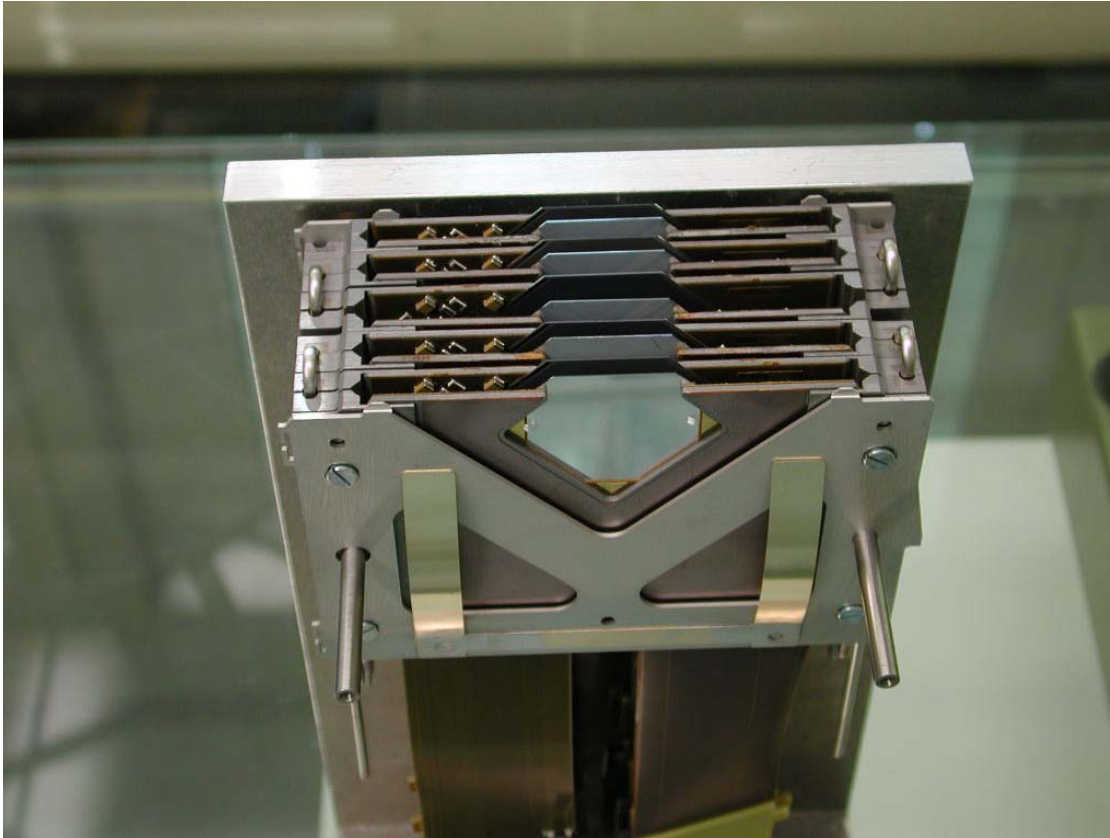


 jointly with DT1



DT2 / ST Projects

TOTEM RP Integration



All drawings completed
All material procured
First 10 real detectors aligned and mounted.
+/- 20 mu precision
Detector Insertion successfully tests done.
Fruitful collaboration with DT1.

DT2 / ST Projects

TOTEM T2 Detector



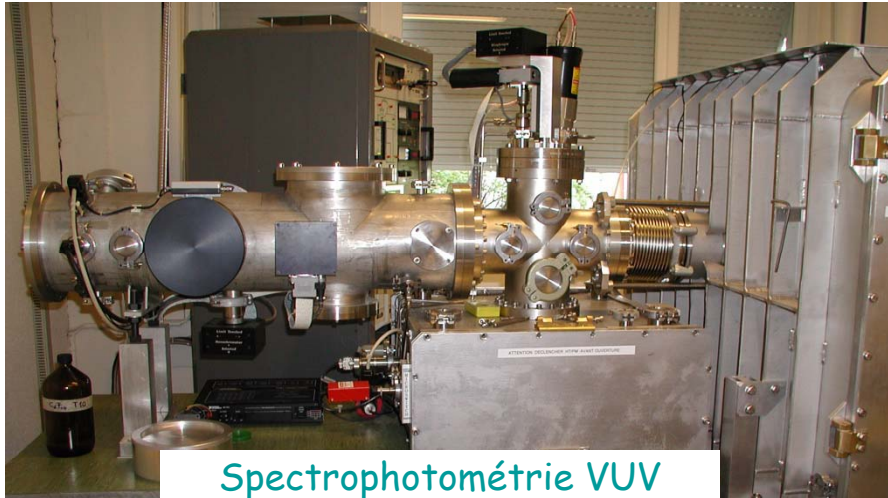
Fabrication of detector components finished.
Successful test beam.
Electronics + integration delayed.
Group takes on additional responsibilities,
Essentially project coordination.

Fruitful collaboration with DT1.
Detector mounting / integration.



DT2-TFG

- Service de dépôt de couches minces et d'usinage sur verre et céramique



Spectrophotométrie VUV



Usinages CNC



Photocathodes CsI

Multiples ressources spécialisées :



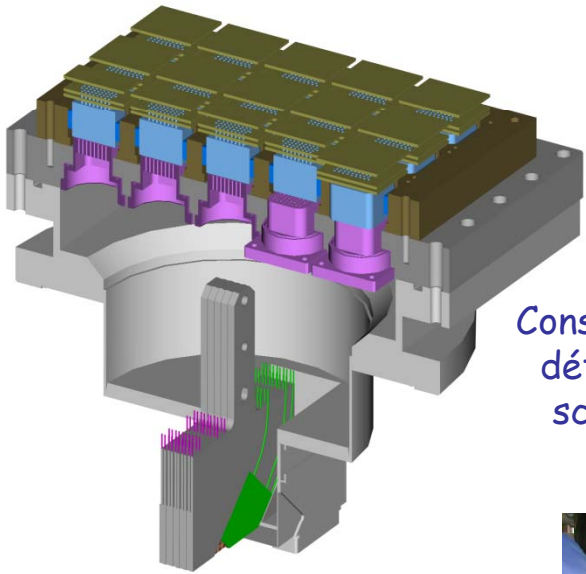
Activités R&D



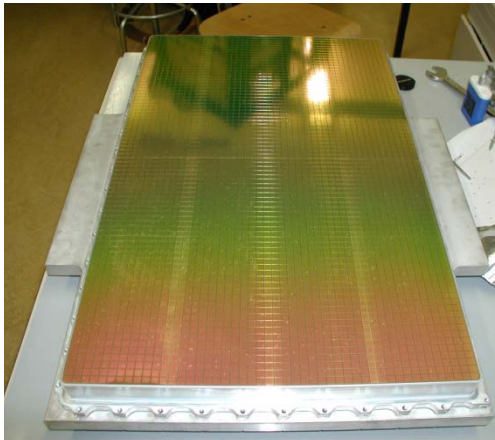
Miroirs, aluminisations

DT2-TFG

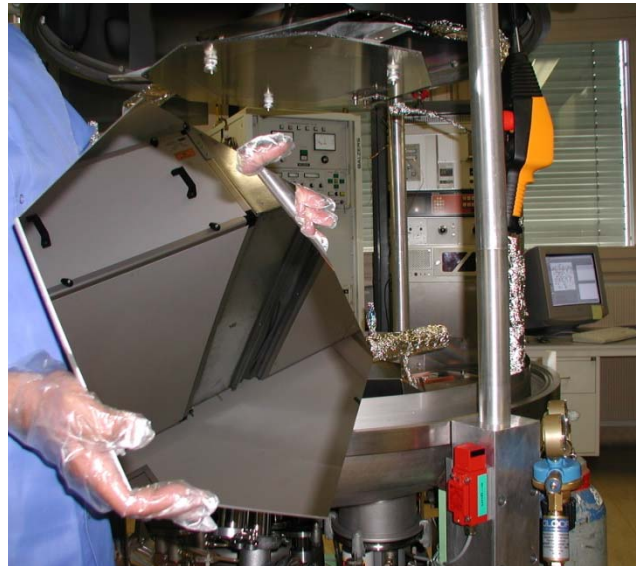
Récentes activités



Construction d'un
détecteur a fibres
scintillantes pour
ATLAS



Développement et production de
photocathodes CsI:
ALICE & COMPASS RICHs, GEMs



Production de miroirs pour
lumière Cerenkov LHCb
RICHs



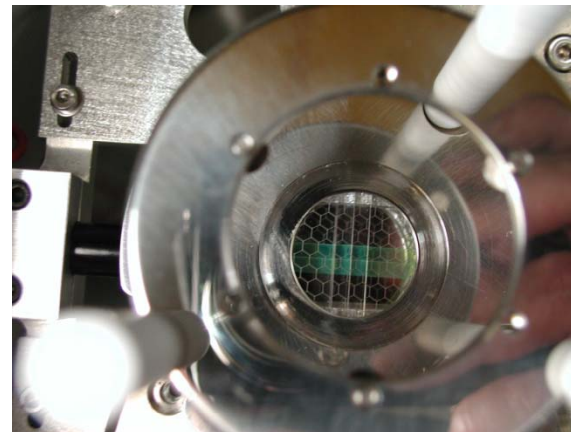
Développement d'un prototype
HPD sphérique

DT2 Scintillator workshop



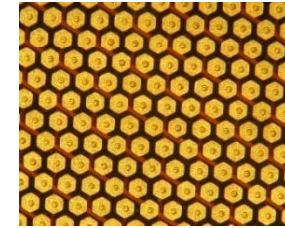
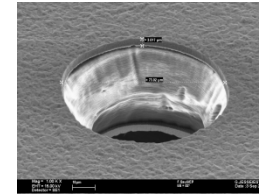
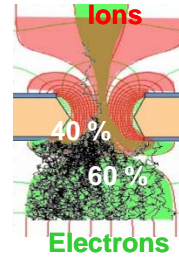
Numerous scintillators and light guides produced.

- ATLAS ALFA trigger counters
- WLS strips for PET proto
- ALICE cosmic counters
- CASTOR test counters
- TOTEM CR
- ALFA CR
- ...

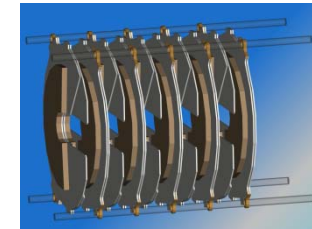
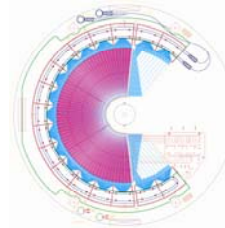


MPG Detectors in DT2

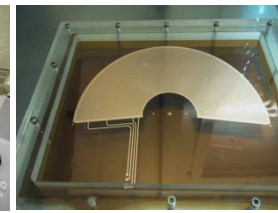
Detector Development



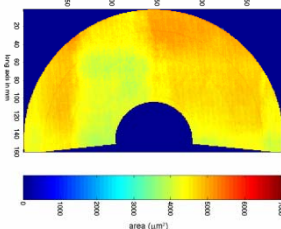
Detector Design



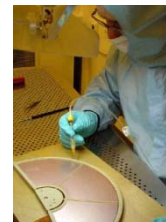
Component Production TS-DEM → Industry



Component Quality Control DT2 & Institutes → TS-DEM → Industry



Detector Assembly and Integration DT2 → Institutes → Industry



Micro Pattern Gas Detectors. Towards an R&D Collaboration.

from **Monday 10 September 2007 (09:00)** to **Tuesday 11 September 2007 (18:00)** at CERN (*AB Auditorium Meyrin*) chaired by: *Leszek Ropelewski* support: *Christian Joram@cern.ch*

Description: A workshop on micro pattern gas detectors will be held at CERN.

The workshop may lead to the formation of an official R&D collaboration (probably RD51) on micro pattern gas detectors.

The goal of such a collaboration would be to bundle and coordinate detector development and simulation work, which is currently being performed in numerous groups at universities and research institutes. The collaboration will allow to:

- structure, coordinate and focus ongoing R&D efforts
- share knowledge, experience and infrastructure, agree on common test and quality standards
- coordinate widespread simulation efforts towards setting-up a common maintainable software package for gas detector simulations
- share investment of common projects (e.g. larger mask sets for GEMs)

This is expected to lead to:

- an improved understanding of operational parameters (gas, fields, readout structures, MC simulations),
- optimized detector performance,
- optimized readout electronics and readout integration with detectors,
- new detector concepts,
- progress in technological and economical aspects (base materials, fabrication methods, industrialization and cost effectiveness).

Contact persons at CERN: *Leszek.Ropelewski@cern.ch* and *Christian.Joram@cern.ch*

Secretariat support: *Kate.Ross@cern.ch* and *Veronique.Wedlake@cern.ch*

Monday 10 September 2007 | Tuesday 11 September 2007 |

Monday 10 September 2007

[top ↑](#)

09:00->10:30 State-of-the-art of micro pattern gas detectors (Overview)

09:00	Introduction to the workshop (00) (Slides) (PDF)	Lucie Linssen (CERN)
09:10	Current trends in Micro Pattern Gas Detectors development (25) (Slides)	Maxim TITOV (Freiburg University)
09:35	Latest progress with Micromegas (20) (Slides) (PDF)	Ioannis Giomataris (Centre d'Etudes de Saclay (CEA-Saclay))
09:55	GEM and other charge multipliers with VLSI pixel read-out (20) (Slides)	Ronaldo Bellazzini (INFN Pisa)
10:15	GEM at CERN (15) (Slides) (PDF)	Leszek Ropelewski (CERN)
10:30	coffee	

11:00->13:00 State-of-the-art of micro pattern gas detectors (GEM and THGEM)

11:00	GEM detectors for high rate tracking (20) (Slides) (PDF)	Bernhard Ketzer (Institut fuer Theoretische Physik)
11:20	GEM, applications in synchrotron radiation experiments and tracking in high energy physics (20) (Slides)	Lev Shekhtman (Budker Institute of Nuclear Physics (BINP))
11:40	Latest progress in developing GEM-like detectors with resistive electrodes (20) (Slides) (PDF)	Vladimir Peskov (Pole Universitaire Leonarod de Vinci)
12:00	Recent advances in THGEM detectors at Weizmann (20) (Slides) (PDF)	Marco Cortesi (Weizmann Institute of Science)
12:20	Recent developments on MHSPs and GEMs in gaseous cascade multipliers for ion back-flow suppression (20) (Slides) (PDF)	Joao F.C.A. Veloso (Univ Aveiro)
12:40	GEM detectors activity at Laboratori Nazionali di Frascati of INFN (20) (Slides) (PDF)	Matteo Alfonsi (Laboratori Nazionali di Frascati (LNF))
13:00	Lunch	

14:00->15:30 State-of-the-art of micro pattern gas detectors (Micromegas)

14:00	Micromegas TPC readout R&D (20) (Slides) (PDF)	Paul Colas (DAPNIA)
14:20	MPGD readout TPC using the charge dispersion signal (20) (Slides) (PDF)	Alain Bellerive (Carleton University)
14:40	Large size bulk Micromegas (15) (Slides) (PDF)	Alain Delbart (DAPNIA - Centre d'Etudes de Saclay (CEA-Saclay))
14:55	Micromegas performance and ageing studies (20) (Slides) (PDF)	David ATTIE (CEA/DAPNIA/SPP)
15:15	R&D on Micromegas for an upgrade of ATLAS Muon System for the SLHC (15) (Slides) (PDF)	Joerg Wotschak (CERN)
15:30	coffee	

16:00->17:00 State-of-the-art of micro pattern gas detectors

16:00	Two-phase avalanche detectors based on gas electron multipliers (20) (Slides) (PDF)	Alexei Buzulutskov (Budker Institute of Nuclear Physics), Lev Shekhtman (Budker Institute of Nuclear Physics (BINP))
16:20	MPGD for Active Target Detectors in low energy nuclear physics (20) (Slides) (PDF)	Joel Pouthas (Institut National de Physique Nucleaire (IN3P3))
16:40	Development of Micro Pixel Gas Chamber based on printed circuit technology and its applications (20) (Slides) (PDF)	Toru Tanimori (Department of Physics, Kyoto University)

17:00->19:05 Electronics for micropattern gas detectors

17:00	Micro Pattern Gas Detectors characteristics and front-end electronics requirements (20) (Slides) (PDF)	Werner Riegler (CERN)
17:20	MEDIPIX/TIMEPIX - Pixel electronics for MPGD (20) (Slides) (PDF)	Michael Campbell (CERN)
17:40	Electronics for TPC readout with MPGD (20) (Slides) (PDF)	Luciano Musa (CERN)
18:00	The AFTER-based MPGD-TPC readout electronics (15) (Slides) (PDF)	Pascal Baron (CAE Saclay)
18:15	VFAT and discharge protection chip (15) (Slides) (PDF)	Walter Snoeys (CERN)
18:30	Multichannel readout electronics for MPGD, based on different types of IDEAS chips (20) (Slides) (PDF)	Nail Malakhov (Ohio State University)
18:50	R&D on ASIC for GEM (15) (Slides) (PDF)	Giulietto Felici (Laboratori Nazionali di Frascati (LNF))
20:00	Workshop dinner	

Tuesday 11 September 2007

[top ↑](#)

09:00->09:50 State-of-the-art of micropattern gas detectors (pixel readout)

09:00	GRIDs - latest progress (20) (Slides) (PDF)	Jan Timmermans (NIKHEF)
09:20	Experience with 3-GEM configurations using the TimePix (20) (Slides) (PDF)	Uwe Renz (University of Freiburg)
09:40	MPGD activities - plans in Bonn (10) (Slides) (PDF)	Klaus Dash (Bonn Univ.)

09:50->10:30 Software tools for gas detectors studies

09:50	Software tools for MPGD simulations (20) (Slides) (PDF)	Rob Veenhof (CERN)
10:10	GEANT4 and GEANT4 Collaboration (20) (Slides) (PDF)	John Apostolakis (CERN)
10:30	coffee	

11:00->13:00 Technological aspects of MPGD

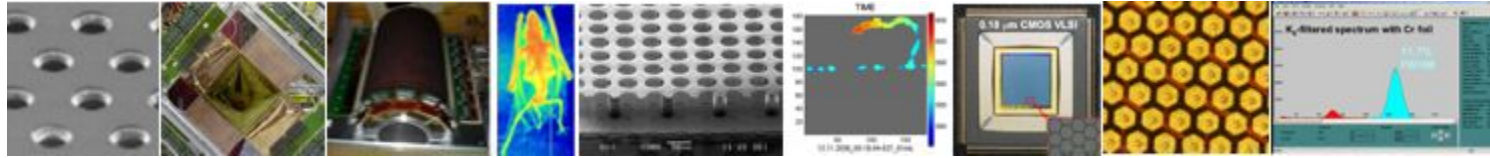
11:00	MPGD technologies (20) (Slides) (PDF)	Rui De Oliveira (CERN)
11:20	Large GEM detectors (20) (Slides) (PDF)	Serge Duarte Pinto (CERN)
11:40	GEM detectors production and QC (20) (Slides) (PDF)	Kari Kurvinen (Helsinki Institute of Physics HIP)
12:00	A test and certification of GEM foils produced by Tech-Etch (20) (Slides) (PDF)	Nik Smirnov (Yale University)
12:20	Aging and radiation hardness of gas detectors (20) (Slides) (PDF)	Mar Capceans Garrido (CERN)
12:40	The LCTPC Collaboration: some key aspects of activity (20) (Slides) (PDF)	Klaus Dehmel (Dept of Physics and Space Sciences)
13:00	Lunch	

14:00->15:30 Forming an R&D collaboration

14:00	Experience from RD50 - R&D Collaboration on rad hard tracking detectors (20) (Slides) (PDF)	Michael Moll (CERN)
14:20	Towards RD51 - organizational aspects (15) (Slides) (PDF)	Christian Joram (CERN)
14:35	Future of the gas detectors (20) (Slides) (PDF)	Harry Van Der Graaf (NIKHEF)
15:30	coffee	

16:00->17:00 Discussion: Next steps, sharing of tasks.

~100 registered participants
40 presentations



RWTH Aachen (Germany)
NIKHEF Amsterdam (Netherlands)
 University of Texas Arlington TX (US)
 INP NCSR Demokritos Athens (Greece)
 Universities of Aveiro and Coimbra (Portugal)
 IFAE Barcelona (Spain)
 INFN Bari (Italy)
 Bonn University (Germany)
 PTB Braunschweig (Germany)
 Eotvos University Budapest (Hungary)
 Uludag University Bursa (Turkey)
 INFN Cagliari (Italy)
 MIT Cambridge MA (US)
 Carleton University and TRIUMF (Canada)
 AGH UST Cracow (Poland)
 GSI Darmstadt (Germany)
 PGE and Panalytical Eindhoven (Netherlands)
 Ecole des Mines Superior St. Etienne (France)
 LNF-INFN Frascati (Italy)
 University of Freiburg (Germany)
 C-RAD Imaging AB Frösön (Sweden)
 CERN TS-DEM Geneva (Switzerland)
CERN PH Geneva (Switzerland)
 ATLAS Upgrade Coll. Geneva (Switzerland)

Athens Demokritos, Athens National Technical University, Athens University, Brookhaven National Laboratory, Bucharest NIPNE, CERN, Harvard University, Naples, Petersburg NPI, University of Science and Technology of China, University of South Carolina, Thessaloniki Aristotle University, Washington University

RD 51

Geneva University (Switzerland)
 CEA **SACLAY** Gif sur Yvette (France)
 LPSC Grenoble (France)
 DESY FLC Hamburg (Germany)
 HIP Helsinki (Finland)
 Saha Institute Kolkata (India)
 Florida Institute of Technology Melbourne FL (US)
 University of Montreal (Canada)
 Technische Universität München (Germany)
 Yale University New Haven CT (US)
 TERA FOUNDATION Novara (Italy)
 Budker Institute Novosibirsk (Russia)
 IPN CNRS-IN2P3 Orsay (France)
 INFN Pisa and University of Siena (Italy)
 University of Sheffield (UK)
 Technical University Prague (Czech Republic)
 Weizmann Institute Rehovot (Israel)
 INFN and University of Trieste (Italy)
 Brookhaven National Laboratory Upton NY (US)
 University of Victoria and TRIUMF (Canada)
 SMI Vienna (Austria)
 University of Zaragoza (Spain)

**~ 50 Institutions declared interest
 in the MPGD R&D Collaboration**

<http://mpgd.web.cern.ch/mpgd/>

Selected publications with major contributions of DT2 members

- The COMPASS experiment at CERN, Nucl. Instr. Meth **A 577**, (2007), 455-518
- Glass-coated beryllium mirrors for the LHCb RICH1 detector
Nucl. Instr. Meth A **570**, (2007), 565-572
- Hadron beam test of a scintillating fibre tracker system for elastic scattering and luminosity measurement in ATLAS. *Journal of Instrumentation 2 (2007) P07004*
- Depth of interaction determination in GEM-based multi-layer PET detectors
Nucl. Instr. Meth A **582**, (2007), 693-695
- Design and prototype studies of the TOTEM Roman pot detectors
Nucl. Instr. Meth A **581**, (2007), 499-503
- The X-HPD: Development of a large spherical hybrid photodetector
Nucl. Instr. Meth A **581**, Issues (2007), 469-472
- CCE measurements and annealing studies on proton-irradiated p-type MCz silicon diodes
Nucl. Instr. Meth A **583**, Issue 1, (2007), 64-70