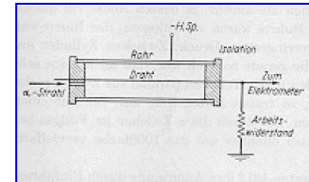


WP13 = JRA1 = Innovative gas detectors

WP COORDINATORS:

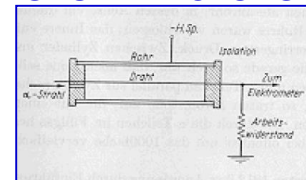
Silvia Dalla Torre, Imad Laktineh



- **2 TECHNOLOGIES: the future of GAS DETECTORS**
 - **RPCs**
 - **MPGDs**
- **TASKs grouped in 3 major sectors**
 - *Advanced detector developments, namely detector R&D:*
 - **TASK 13.2, including 5 activities**
 - *Tools to facilitate the detector development, namely technological R&D oriented to detector development by realizing dedicated lab instruments:*
 - **TASK 13.3, including 3 activities**
 - *Preparation for large series production, namely establishing techniques and protocols for large size/series construction, QA, production transfer to industry:*
 - **TASK 13.4, including 7 activities**

RELEVANT points:

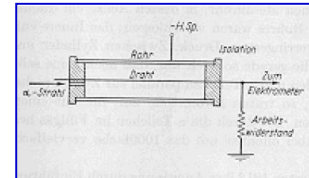
- **TT perspectives in the large majority of the WP13 activities**
- **Work already started in the large majority of the WP13 activities**



WP13, SCIENTIFIC ASPECTS

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TASK no	Task 13.2 Advanced detector developments	coordinator	responsible Institution	partner institutions in AIDA2020	other partners	key-words	synergies within WP13	synergies within AIDA2020	external synergies
13.2.1	Establishing new resistive materials for high rate RPCs	Paulo FONTE	LIP	IN2P3-Lyon, INFN-Bari, INFN-LNF, IN2P3-Clermont-Ferrand	GWNU (Korea)	novel low-resistivity materials, high-rates, ageing	3 other tasks: 13.2.2, 13.2.3, 13.4.6		LH-LHC
13.2.2	Development of fast-timing large RPCs	Imad LAKTINEH	IN2P3-Lyon	IN2P3-OMEGA, INFN-Bari, IN2P3-Clermont-Ferrand, INFN-Bologna	GWNU (Korea)	Large-size, time resolution O(100ps), fast FE interfacing	4 other tasks: 13.2.1, 13.2.3, 13.4.1, 13.4.6	WP4	LH-LHC, muon tomography
13.2.3	High-rate and fine space resolution RPCs operated with eco-gases	Giulio AIELLO	INFN-TOV	INFN-LNF, CERN, INFN-Bari, MPI, INFN-Torino	GWNU (Korea)	Eco-gasses, fine-space resolution O(100um), high rates	4 other tasks: 13.2.1, 13.2.3, 13.4.1, 13.4.6		LH-LHC
13.2.4	Development of the Resistive-WELL GEM detector (R-WGEM)	Giovanni BENCIVENNI	INFN-LNF	INFN-Bari		High-gain (O(10 ⁴)), resistive read-out plane, high rates, simplified construction technology, fine space and time resolution	1 other task: 13.4.5		RD51, LH-LHC
13.2.5	Development of high-gain MPGDs based on advanced THGEMs and hybrid MPGDs	Silvia DALLA TORRE	INFN-Trieste			hybrid architecture (THGEM, Micromegas), high-gain (O(10 ⁶)), THGEM optimization, single photon detection	4 other tasks: 13.3.1, 13.3.2, 13.4.4, 13.4.7	WP8	RD51

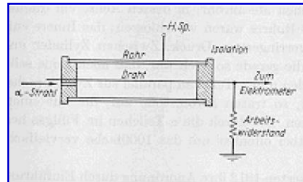


WP13, SCIENTIFIC ASPECTS

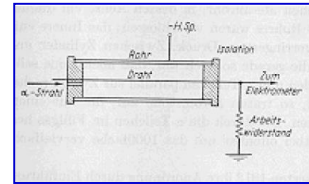
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TASK no	Task 13.3 Tools to facilitate the detector development	coordinator	responsible Institution	partner institutions in AIDA2020	other partners	key-words	synergies within WP13	synergies within AIDA2020	external synergies
13.3.1	Interfacing FE-chips specific to gas detectors to the Scalable Readout System (SRS)	Eraldo OLIVERI	CERN	AGH Krakow, Bonn U		interfacing FE chips: VMM, GEMROC, Timepix3	2 other tasks: 14.2.4, 14.2.5		RD51, LH-LHC
13.3.2	Development of cheap, standard MPGD dedicated laboratory instruments	Eraldo OLIVERI	CERN	CERN, INFN-Trieste, Wigner, CEA-Saclay		Compact High Voltage Power Supply for MPGDs, femto-pico amperemeter, signal processing, regeneration gas systems	2 other tasks: 14.2.4, 14.2.5		RD51
13.3.3	PCB development using HDI-technology and 3D-mounting of chips for MPGD readout	Leif JOENSSON	LUND U	CERN		HDI (High Density Interconnect) technology for 3D mounting of FE chip (MPGD R-O), high channel density, reduced material budget	3 other tasks: 13.2.3, 13.4.2, 13.4.8		CLIC, ILC

TASK no	Task 13.4 Preparation for large series production	coordinator	responsible Institution	partner institutions in AIDA2020	other partners	key-words	synergies within WP13	synergies within AIDA2020	external synergies
13.4.1	Large-size RPC detectors preserving mechanical precision	Hubert KROHA	MPI	INFN-TOV, INFN-Bari, CEA-Saclay		mechanical precision for large-size detectors (both technologies)	2 other tasks: 13.2.2, 13.2.3		LH-LHC
13.4.2	Establishing procedures and tools for large series resistive MICROMEGAS anodes	Paul COLAS	CEA-Saclay			resistive MICROMEGAS by screen printing, sputtering, painting, film lamination, Argon Unostar E printing machine	2 other tasks: 13.2.5, 13.4.7		RD51, LH-LHC
13.4.3	Control of foil/micromesh mechanical tensioning by optical techniques	Luigi BENUSSI	INFN-LNF	INFN-Bari, INFN-Bologna		flatness of MPGD foils/meshes, assembly, monitoring over years, fiber Bragg grating	3 other tasks: 13.2.5, 13.4.2, 13.4.7		LH-LHC
13.4.4	Quality control tool for detailed gain maps (hole by hole)	Dezso VARGA	Wigner RCP	INFN-Trieste		high resolution gain maps hole by hole (GEMs, THGEMs); quality control, correlation with optical inspection	2 other tasks: 13.2.5, 13.4.7		RD51, LHC
13.4.5	Design of a quality control system to ensure the electrical integrity of electrode patterns by pulse reflection method	Antonio Ranieri	INFN-Bari	INFN-LNF		QUALITY CONTROL SYSTEM: ELECTRICAL INTEGRITY OF MPGD READOUT PLANES, FPGA-based system	2 other tasks: 13.2.4, 13.4.7		RD51, LH-LHC
13.4.6	Production protocols of optimised RPC components for easy technology dissemination	Gabriella PUGLIESE	INFN-Bari	INFN-TOV, IN2P3-Lyon, LIP, MPI		protocol of large series production of RPCs	3 other tasks: 13.2.1, 13.2.2, 13.2.3		HL-LHC, ILC, CBM, applications
13.4.7	Standard production protocols of optimised MPGD components to facilitate technology dissemination	Paul COLAS	CEA-saclay	CERN		bulk MICROMEGAS, resistive layers, multilayer stacking, read-out schemes	2 other tasks: 13.2.5, 13.4.2		RD51, LH-LHC, ILC, applications



- **Strategy:**
 - **Close activity monitoring by 3 meetings per year:**
 - Two virtual meeting
 - A physical meeting
 - **Help line:**
 - The task coordinators are invited to promptly contact the WP coordinators if difficulties arise
 - Difficulties: technical, financial, ...
 - **Favour the integration of the community:**
 - facilitate the implementation of all potential synergies also between the different technologies



@ the parallel session on 4/6/15:

- **Manpower available for the various activities**
 - No critical issue detected

- **Complementary (respect to EC contribution) financial resources for equipment and consumables:**
 - In general they look available

- **Laboratory infrastructure**
 - Adequate labs and related equipment available (all partners)