



ITk Kick-off Meeting Preparation - Genova

ATLAS Genova Group Meeting
16 October 2014

G. Darbo, C. Gemme / INFN - Genova

- 20 Years in ATLAS Pixel – Joined ATLAS in 1995.
- A total of 16 Researchers (15.1 FTE's) and 3 Technicians
- Part of the group involved in R&D for ITk (3.45 FTE)

Anagrafica

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	Contratto	Qualifica	ATLAS	R&D_Fase2	HVR_CCPD	Aida-II	PRIN STOA_LHC	Totale ATLAS
Barberis Dario	Associato	Ricercatore	100					100
Darbo Giovanni	Dipendente	Dirigente di Ricerca	15	55	30			100
Favareto Andrea	Associato	Borsista					100	100
Ferretto Parodi Andrea	Associato	Borsista	100					100
Gagliardi Guido	Associato	Ricercatore	100					100
Gaudiello Andrea	Associato	Dottorando	40	30	30			100
Gemme Claudia	Dipendente	Ricercatore	60	30	10			100
Guido Elisa	Associato	Borsista	90	10				100
Morettini Paolo	Dipendente	Primo Ricercatore	20	60	20			100
Osculati Bianca Maria	Associato	Prof. Associato	100					100
Parodi Fabrizio	Associato	Ricercatore	100					100
Passaggio Stefano	Dipendente	Primo Ricercatore	80					80
Rossi Leonardo	Dipendente	Dirigente di Ricerca	80		20			100
Sannino Mario	Associato	Prof. Associato	50	30	20			100
Schiavi Carlo	Associato	Ricercatore	100					100
Brunengo Alessandro	Dipendente	Primo Tecnologo	15				15	30
Total FTE			10.5	2.15	1.3	0	1.15	15.1

Expertise/Interest of the Group – “Pedigree”

Sensors:

- *3D / HV/HR-CMOS – Qualification and contribution to design*

Chip design/test:

- *HV/HR-CMOS design with Milano (+ Bologna ...) at STM*

Hybridization:

- *both C (glue) and R (bump-bonding) coupling*

Modules:

- *Assembly / Test / QC*

DAQ / ROD:

- *Expertise and gave contribution for Pixel and IBL (with Bologna)*

Mechanics/Cooling:

- *large contribution for the Pixels, interested to revive for the ITk.*

Services:

- *we contributed for the Pixel (cables) and for IBL (stave flex)*

ATLAS Infrastructures and major equipment

- 2 clean rooms class 10000 (140 m²)
- Wire bonding: Hesse & Knipps mod.715 (bonder) + Dage 3000 (pull tester)
- Die bonder: Fineplace 96 die bonder from Finetech
- X-ray inspection machine: X-TEK VTX160IXS, 2 μ m resolution
- Probe station: Alessi REL 4500 - 6" probe station
- Climate chamber: Binder MK-53 (-40 ÷ +180°C)
- Plasma cleaner: Mini Flecto System for Ar / O plasma cleaning.
- Thermostatic bath: Lauda RP-845 (-45 ÷ + 200°C), RP-855 (-45 ÷ + 200°C)
- Infrared camera: FLIR SC620 (Temperature Range: -40°C to 500°C, Thermal Sensitivity ≤ 55 mK)
- Pulser Agilent 81110A, Logic State/Time Analyzer and pattern generator HP16700, 200 Volt CV-meter
- Pulsed IR Laser: PixoQuant PLD-800 driver, Laser head LDH-P-160 (1067 nm, 44 ps), focuser (9 μ m spot at 12 mm).
- Microscopes: Keyence VX-8000 (25-175x / 100-1000 x with 2.1M pixels camera), several microscopes.
- Mechanical profilometer: KLA-Tencor P7: 8", 1 mm step, Repeatability/reproducibility: 4/15 Å Vertical resolution: 0.01/0.60 Å
- Radioactive β and γ sources
- USB-based FE-I4 readout system for FE-I4/FE-I3 and adaptor for HV/HR-CMOS

Low Temperature Detector facility at INFN Genova (we are collaborating on HV/HR-CMOS hybridization)

- **Thin Film Growth Systems**
 - 2 E-guns 4 material each @ 10⁻⁹ mbar
 - 2 AC & 1 DC Magnetron Sputtering Systems
 - Pulsed Laser Deposition System @ 10⁻¹⁰ mbar
- **Micro-fabrication**
 - Reactive Ion Etching, Plasma & Wet etching
 - Mask Aligners, Oxygen Plasma & Ion Beam
 - PLD film deposition
 - TES on SiN membrane
 - Critical Point Dryer