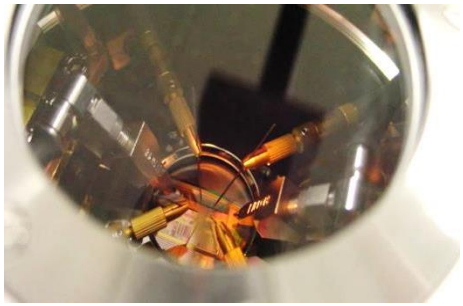
CHARACTERIZATION PLATFORMS

Physical and electrical

- **I-V and C-V** from T=4K up to 600K.
- **Transport properties** (Hall, Magnetic-resistance)
- **Noise (LFN/RTN) Measurements**
- **Nano-scale AFM measurements**

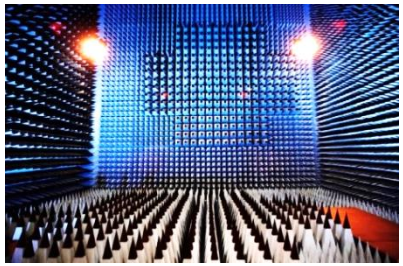
Optical

- **Gain / losses**
- **Mode profile**
- **M-lines**
- **Spectrum analysis**
- **Bragg grating**



Microwave

- **Microwave instruments**
- **RF Communication system over optical fiber**
- **Radiofrequency PCB prototyping**
- **Anechoid Chamber**



ECLAT

- **Lasers**
- **Electromagnetism**
- **Cryogenic charac.**
- **THz spectroscopy and Imaging**

TECHNOLOGY

- **CLEAN ROOM**
  - Thin films deposition by PVD : RF sputtering / Joule Effect evaporation / Metallic and dielectric layers
  - UV Lithography : Spin coating, photomasker / min. 0.6µm
  - Wet / Dry etching (RIE, ICP) , Chemistry, Nanomaterials
- **OTHER EQUIPMENTS**
  - Ion exchange technology on glass
  - Dicing, polishing, thinning, lapping

IMEP-LAHC

Institute of Microelectronics, Electromagnetism and Photonics

Laboratory of Hyperfrequencies and Characterization

at a glance…

2 Cities (Grenoble & Chambery)
3 Research Groups
9 Research Axes
50 Professors, Researchers and Associates
15 Technicians and engineers
39 PhD students
6 Post-Doc

Director
A. Kaminski-Cachopo

Deputy Directors
E. Ghibaudo (Grenoble)
F. Garet (Chambéry)

GRENOBLE INP UGA · UGA Université Grenoble Alpes · cnrs · UNIVERSITÉ SAVOIE MONT BLANC

https://imep-lahc.grenoble-inp.fr/en

CMNE group
(**M**icro/**N**ano **E**lectronic **C**omponents)

Headed by: Q. Rafhay

I. **Ultimate CMOS and alternative technologies**
exploring device physics and applications in advanced Si and non-Si technologies

II. **Integrated nanostructures and nanosystems**
evaluating the potential of nanostructures for increased functionality of integrated circuits

III. **Simulation & Modelling**
transverse activity which works in close interaction with the two actions above

IV. **Superconducting electronics**
exploring the potential of RSFQ (Rapid Single Flux Quantum) devices and circuits

PHOTO group
(**PHO**tonics **T**erahertz and **O**ptoelectronics)

Headed by: J.-F. Roux

I. **Integrated Photonic Sensors**
producing devices based on elementary building blocks: laser sources, optical detection, integrated optical functions on glass, 3D integration of semiconductors, LiNbO3 and polymers.
Applications to sensors, RF signal generation and telecommunications and quantum optics

II. **Characterization of THz materials and devices**
aiming to develop new optoelectronic components, systems and applications for the THz domain developing advanced THz characterization methods: spectroscopy, imaging etc…

2 Transverse research axis: Sensors, Optoelectronic devices and techniques

DHREAMS group

Headed by: P. Xavier

(**D**evices in **H**igh f**R**equencies for sustainable **E**lectronics **A**nd for complex syste**MS**)

I. **Microwave sustainable electronics**
supporting the worldwide growing movement in compact and conformable connected devices
a. 2D/3D antennas, compact passive functions
b. Flexible and biosourced RF devices
c. RF Sensors for environment/biology
d. Ultra low power digital transmission systems

II. **Advanced microwave characterization of complex systems**
facing the problem of the complexity of RF environments and materials
a. High frequency measurement methods
b. Extraction of physical properties for integrated devices and very heterogeneous media