

CIME Nanotech

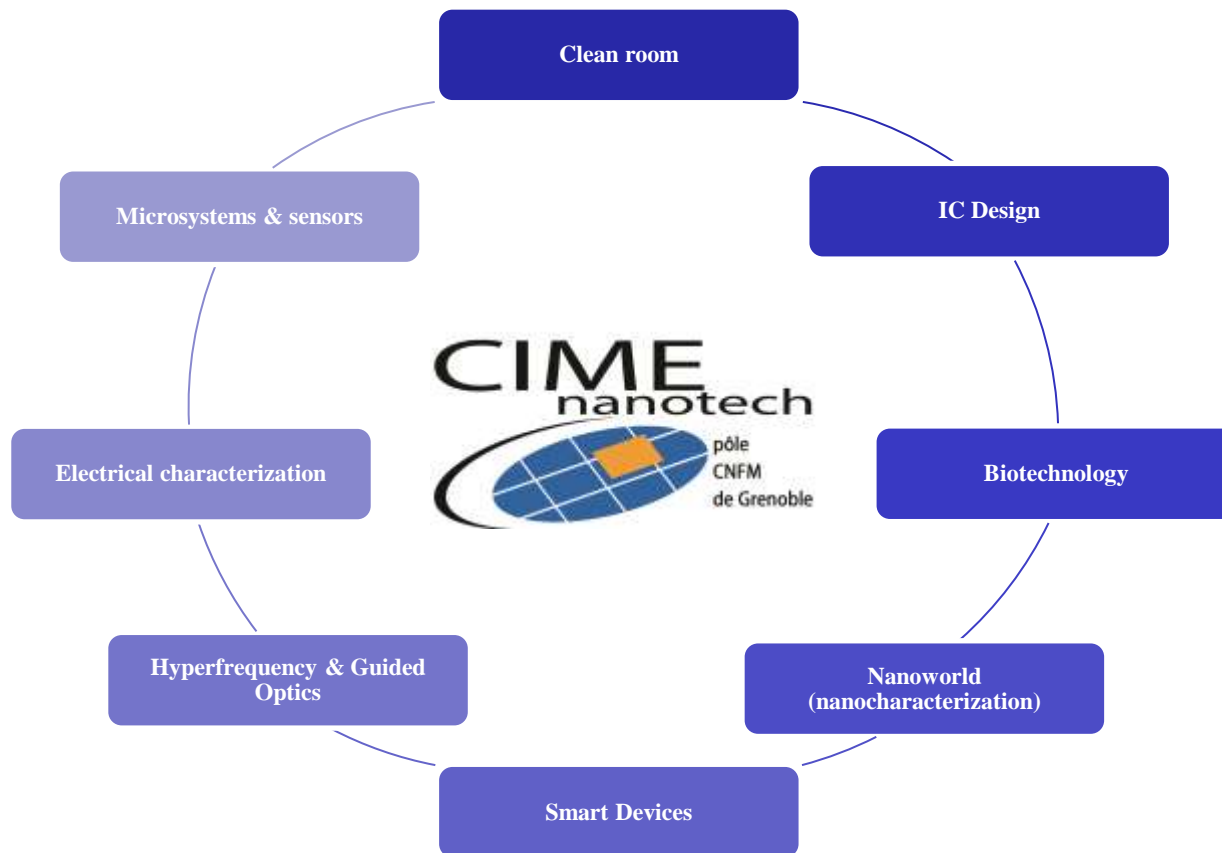
Academic center for Microelectronics and Nanotechnology

3 000 m² of Technology Platforms dedicated to Education and Research

(750 m² clean rooms up-gradable to class 10)



8 platforms Education and Research



Clean Rooms facilities

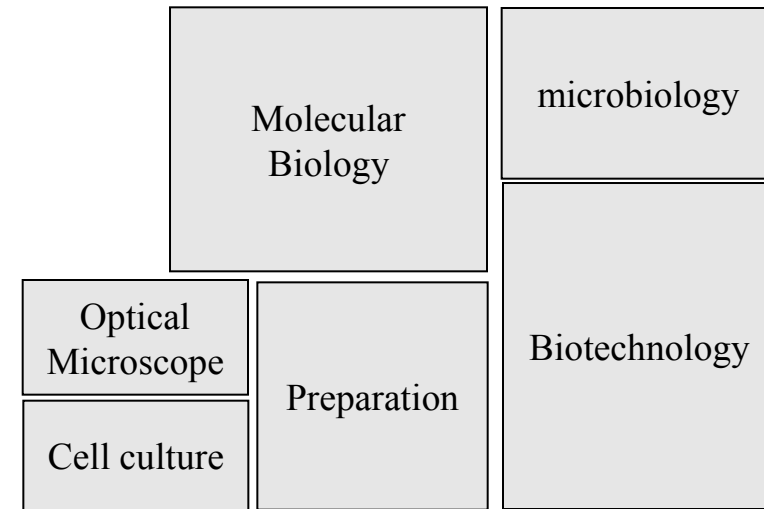
750 m² class 100 → up-gradable to 10



Biotechnology Platform

1. Biological Macromolecules Preparation :

- Cell Culture
- DNA Protein preparation
- Molecular Biology
- Fluorescence Protein analysis



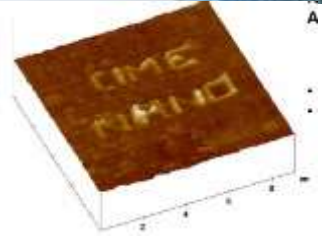
2. biotechnology : DNA and Protein Biochips

→ Study of DNA Strands interaction

- Robot dispenser for DNA and protein Biochips
- Biochips analyzer
- Microchips analyzers (absorbance, luminescence, fluorescence)

Nanoworld platform

(100 m²)



- Equipments 2 AFM (Veeco and Molecular Imaging) + 1 STM (Nanosurf):

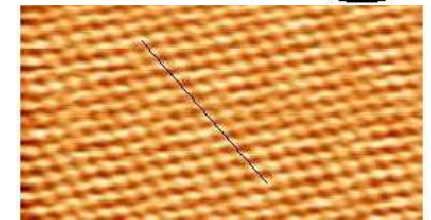
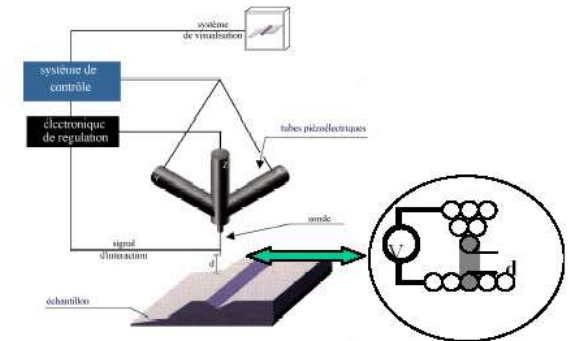
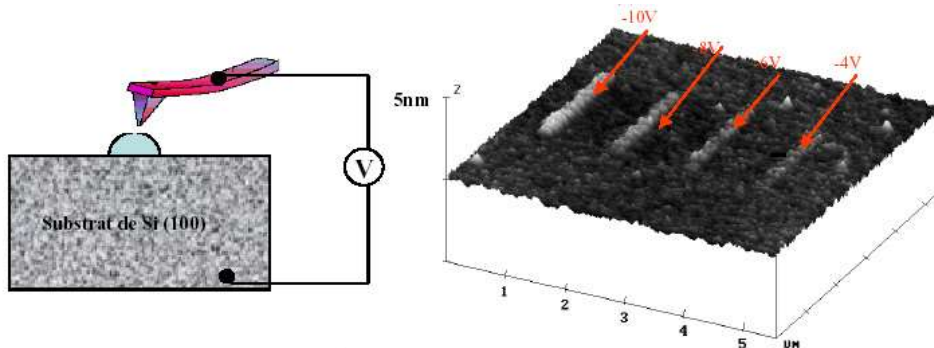
• *Nanocaractérisation by AFM or STM :*

contact, tapping, Nanolithography on Si, injection and detection of electrical charges

2007 : **2nd AFM (Molecular Imaging) : caractérisation in liquid phase**

- Typical practicals (undergraduate students) :

Si Surface Nano-oxidation

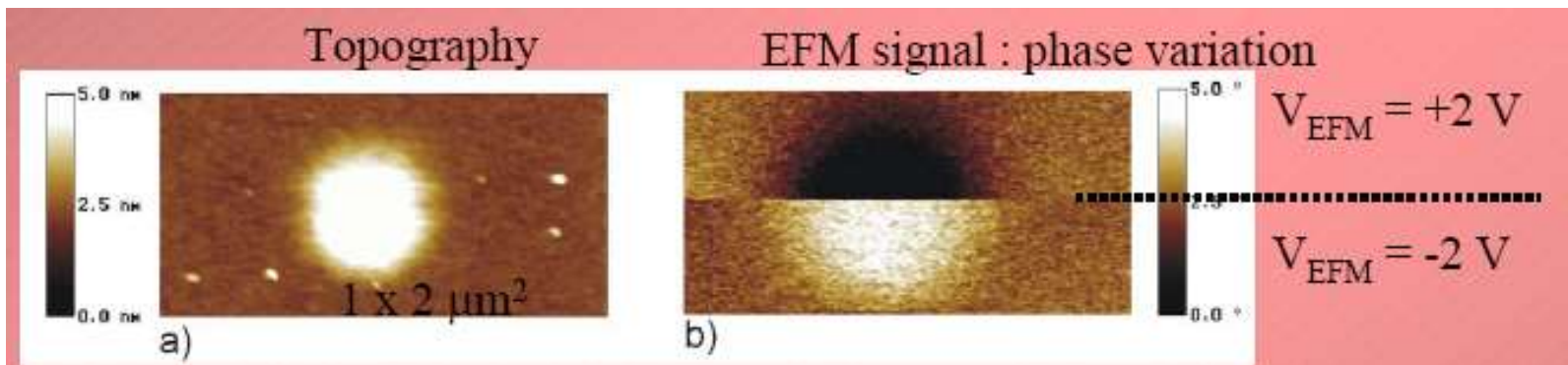
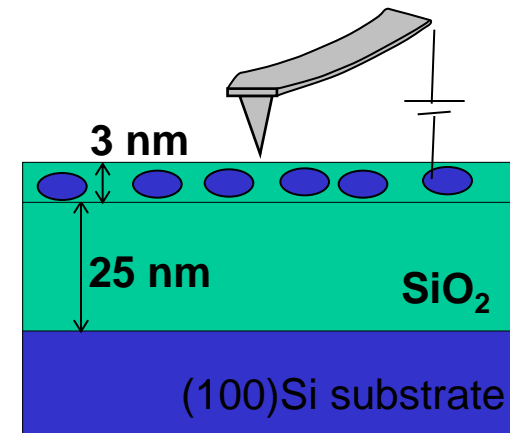


Graphite Surface Imaging

Advanced Practicals : (Graduate students) injection and detection of electrical charge : EFM mode

Application : Nano Flash memory

Samples supplied by CEA-LETI



IC Design and Test

Facilities : X 60 Work Station SUN (Solaris)

CAO tools : Cadence, Mentor, Synopsys, Altera, Xilinx, Silvaco...

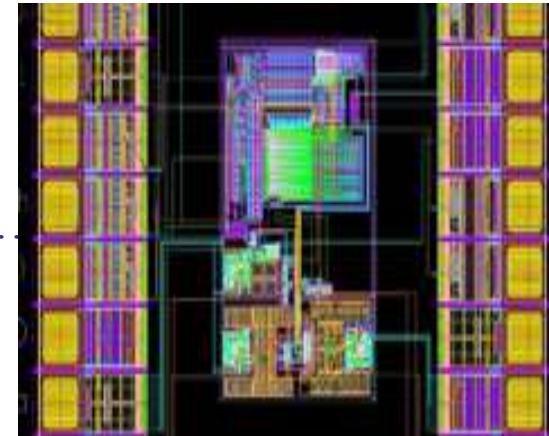
« Design Kits » : ST Microelectronics, AMS....

Education :

- Integrated System Design (analog, Digital, mixed-signal)
- Prototyping of integrated system (hardware / software)
- Test

Research :

- 9 National programs (ANR, Minalogic, etc...)
- 7 European programs (IST, Medea+)
- 3 International programs (extra Europe)



Conclusion

Key CIME Nanotech data :

8 technology platforms dedicated to education and research

1300 students hosted each year
(undergraduate Engineers, PhD and post-doc)

12 universities (nationwide) using the CIME Nanotech facilities each year

140 instructors (professors and associate professors)

15 persons in the technical staff