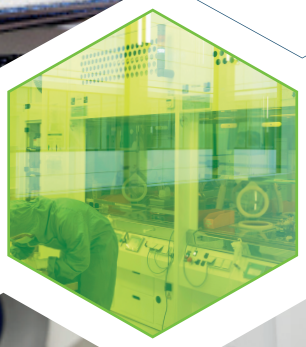
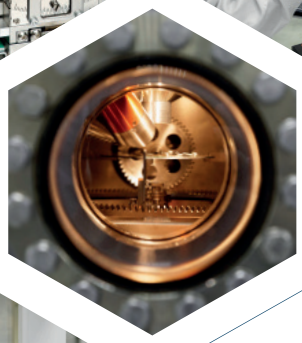
C2N Centre DE Nanosciences & DE Nanotechnologies



TECHNOLOGICAL AND CLEAN ROOM FACILITIES



cnrs université PARIS-SACLAY Université Paris Cité

INFRASTRUCTURES AND EXPERTISES TO CHALLENGE THE SCIENCE OF THE INFINITELY SMALL

MATERIAL GROWTH & DEVELOPMENT PLATFORM

POEM

The platform develops advanced materials for the scientific and industrial community, such as crystalline thin films or nanostructures based on IV and III-V semiconductors, two-dimensional (2D) materials and functional oxides.

Expertise

Thin and crystalline materials, 2D, functional and hybridisation

Epitaxy (MBE, MOVPE, CVD, PLD, UHV-CBE)

Heterostructures and nanostructures of III-V on GaAs, InP, GaP and IV elements on Si

III-V, GaN and SiGe nanowires Integration of III-V materials on silicon

Magnetic Thin films and functionalized oxides

Two-dimensional materials (graphene, TMDs, hBN)

Topological materials

MATERIALS ANALYSIS PLATFORM

PANAM

The platform develops analysis tools and methods for new materials in order to determine their structural and chemical properties and correlate them with their functional properties.

Expertise

Structural and chemical analysis down to the atomic scale by Transmission Electron Microscopy

Multi-technique X-ray diffraction

Atomic force microscopy and coupled functional analysis techniques

Local structural and optical analyses using time-resolved cathodoluminescence

MICRO AND NANO-TECHNOLOGIES INNOVATION PLATFORM

PIMENT

The platform is equiped to develop, structure and characterise materials, and to manufacture and assemble components.
It meets the micro and nano manufacturing needs of C2N's research projects and, more generally, the demands of the scientific and industrial community.

Expertise

Optical and alternative lithography, nanolithography

Metallic and dielectric depositions and heat treatments

Dry and chemical etching, electrochemistry

Scanning electron microscopy and physico-chemical characterisation

Back-end

170
Students trained/year

230
projects/year

250
Users/year

2900 sqm
of cleanroom

38
Engineers and Technical staff

170 sqm
dedicated to training

55 M€
value

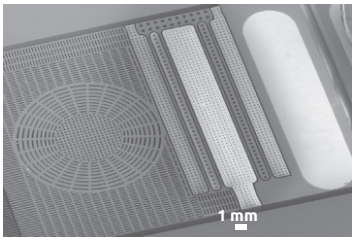
150
PhD and Post-doctoral students

250 sqm
dedicated to enterprises

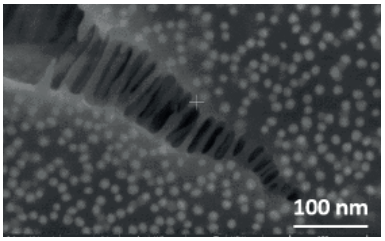
600 h/year
of practical training

OVERVIEW OF OUR TECHNOLOGICAL EXPERTISE

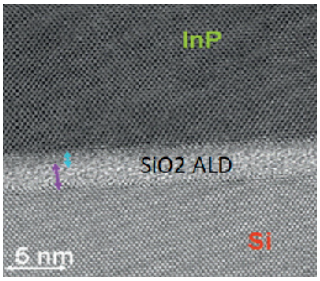
From innovating materials to prototyping the components of the future, based on multidisciplinary fundamental research



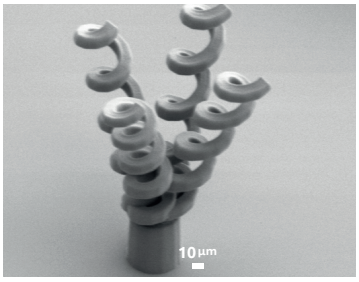
Energy recovery electromechanical microsystem for medical implants and connected objects



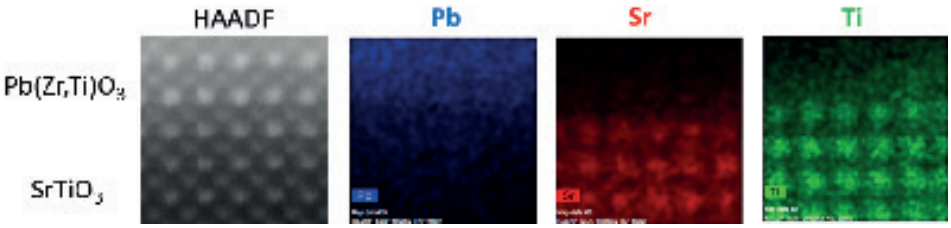
Observation by low volatge ultra high resolution scanning electron microscopy of nanoparticles on insulator



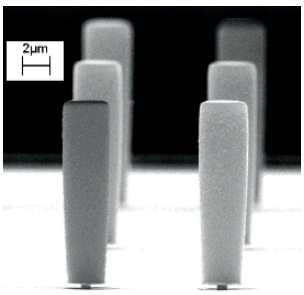
SiO_2 interface layer deposited by ALD (Atomic Layer Deposition)



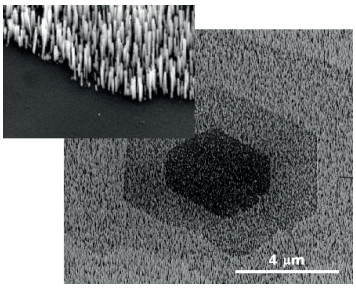
Multi-helix micro-swimmers produced by 3D lithography



Interface between $Pb(Zr,Ti)O_3$ and $SrTiO_3$: HAADF STEM imaging and EDX mapping - MBE epitaxy - (INL collaboration)

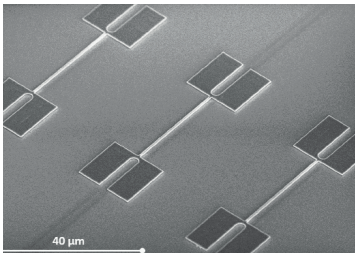


UV optical lithography of SU8 resin on LOR



Gan Nanowires hybridization on graphene (CVD) multilayers

Epitaxy of a network of GaP nanowires on SiO2



Heterogeneous integration of suspended optomechanical crystals III-V semiconductors for the generation of ultra-pure signals directly at GHz frequencies

A MAJOR CONTRIBUTOR TO PARTNERSHIPS AND TECHNOLOGY TRANSFER

Transfer of technology Unit
valo@c2n.upsaclay.fr

Expertise and state-of-the-art equipment :
hosting, providing service and collaboration

150 academic and industrial partners

6 deeptech spin-offs hosted

QUANDELA · CRYOHEMT · Spin-ION TECHNOLOGIES · ION-X · NcodiN · e-miRgency Seek and Find

3 joint laboratories (Stellantis, Mistic, Quandela)
1 cross-access agreement with Thalès TRT

TRAINING BY AND FOR RESEARCH

Teaching supported by C2N's expertise
(from L3 to Masters at Université Paris-Saclay)

Membership of several doctoral schools
(EOBE, EDOM, EPIF)

Thematic training courses organised in
collaboration with CNRS Entreprise

CONTACT

renatech@c2n.upsaclay.fr

The C2N Technology Facilities are the Ile-de-France hub of the RENATECH national network, the French academic network of major micro and nanotechnology facilities, led by the CNRS. It is also a member of the European networks Euronanolab and NFFA - Europa (Nanoscience Foundries and Fine Analysis).

RENATECH Le réseau français de nanofabrication · EURO nanoLAB · nffa.eu research infrastructure

cnrs · université PARIS-SACLAY · Université Paris Cité

ANR · bpifrance · Région îledeFrance · Essonne LE DÉPARTEMENT · UNION EUROPÉENNE

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