

STMicroelectronics

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At a Glance

Status: Large Company

Main Activity

The Post Silicon Technology is a Advanced R&D team of the Technology R&D Corporate Group of STMicroelectronics.

The main task of PST team is to develop Technology Platforms based on the combination of multifunctional organic materials, optimized by design, with Soft and NanoImprint Lithography manufacturing, for :

- Low-cost printed electronics systems on plastics
- Hybrid and organic molecular electronics subsystems: ultra low-cost biosensors, Full Plastic biosensor demo system
- Carbon nanotubes-based vacuum electronic devices and CNT-based composite materials.

Printed full organic electronics project

- A set of printed electronics thin-film transistors and logic gate
- Design and development of a reduced complexity 4 bit organic microprocessor by printed electronics technology already demonstrated at 5micron and planned for June 09 the 200nm version.
- Integration in a RF-powered system on plastics

Printed Molecular electronics project

- Bio-functionalization of nano-scale silicon devices
- A set of new class printed arrays of specialized nanoscale devices to be used for the electrical detection of proteins as well as bio-molecules and chemicals, capitalizing on the molecular grafting and nano-imprint technologies.
- Integration of a full plastic microfluidic: demonstrated biosensor system. Electrowetting microfluidic based sensors partially demonstrated and full system ready by June 09

Company Strengths

HIGH END PRODUCTS: Low cost printable sensor array for bio-molecules and chemicals, printable electronics, polymer based microprocessor/microcontrollers. functionalized CNT polymers with very high conductivity and N-type semiconductors. CNT based diodes/triodes

INNOVATIVE PROCESSES/SERVICES/PRODUCTS: Nanofabrication process and chemical grafting on silicon surface. CNT synthesis for various applications: CNT enhanced Polymers, CNT based diodes and triodes

NETWORKING: A*STAR Singapore, NTU Singapore, LETI and LITEN (CEA), CALTECH, Berkeley, UCSD, UCLA, CNR, Nanotechnology Institute of Russian Academy of Sciences, INFN, IMAST, Obducat, Optomec, Fraunhofer, IMEC, Altran, Universite' Libre'de Bruxelles

EXPERTISE: Soft and NanoImprint Lithography, nanoelectronics, Photo-Lithography, microcontact printing, Multiscale Modelling, Chemical Synthesis, chemical physics characterization of surface, Electronics CAD, evaporation process, CNT growth, softcomputing and Multiobjective Optimization Techniques.

Sector

NANOTECHNOLOGY

- Nanomaterials&Chemistry
- Electronics & Devices (ICT)
- Nanomedicine (diagnostic)
- Nanobiotechnology
- Nanofabrication
- Nanotools/instruments
- Energy
- Metrology
- Fundamental research

Type of Cooperation

- ACTIVATION OF NEW PROJECTS (R&DT)
- ECHNOLOGY TRANSFER OR PRODUCTION LICENSING
- DIRECT INVESTMENTS
- JOINT CREATION OF AN ENTERPRISE OR CONSORTIUM
- FINANCIAL PARTICIPATION
- DEVELOPMENT OF NEW PRODUCTS

Partnership Proposal

Printed full organic electronics, Bio-functionalization of nano-scale silicon devices, printed arrays of specialized nanoscale devices to be used for the electrical detection of proteins as well as bio-molecules and chemicals, CNT synthesis for a variety of applications: from CNT enhanced Polymers to CNT based Diodes and Triodes