

# NEW NANO-ENABLED PRODUCTS PILOT

## Annual Plenary Meeting

FRIDAY, 13<sup>TH</sup> NOVEMBER 2020

From 9.30 to 13.30 (Central Europe Time)  
Online event

## AGENDA

**09.30 Welcome**

**09.40 Presentation on next EU funding programmes**

**10.00 Presentation of Nanowires for ICT & Energy applications demo-case**

*Michael Salter, RISE (SE)*

**10.30 Presentation of Nano-Enabled Microsystems for Bio-analysis demo-case (NeMs4BIO)**

*Wolfgang Eberle, IMEC (BE)*

**11.00 Break**

**11.10 Pitching sessions of new demo-cases**

- Introduction
- MEMS for nano-analytiX; CNR-IMM (IT)
- Flip-Chip assembly for Indium Phosphide PICs; CITC (NL)
- Structural health on composite materials; NAITEC (ES)
- Wrap-up

**12.40 Break**

**12.50 Presentation of Shapetronics demo-case**

*Philippe Guaino, CRM group (BE)*

**13.20 Conclusion**

## DEMO-CASES

### **Nano-Enabled Microsystems for Bio-analysis (NeMs4Bio)**

The demo-case on Nano-enabled Microsystems for Bioanalysis (NeMs4BIO) addresses the common challenge integrating and interfacing various components (e.g. light sources, fluid in- and outlets) with Si-based chips into lab-on-chip modules (e.g. chip carrier, cartridge). It is led by imec, located in the region of Flanders. The objective of this initiative is to set up a technology platform that enable the quick development of complete lab-on-a-chip applications, based on a set of compatible component technologies and largely standardized integration solutions. A more standardized collaboration process for the development of a new lab-on-a-chip application for medium volume products would entail lower development costs and prizes as well as better results. Customers want integrated and packaged modules, and not isolated technologies.

### **Nanowires for ICT & Energy applications**

ProNano is an unique Test and Demonstration facility for nanotechnology being established by RISE Research Institutes of Sweden. It is at the heart of the Vanguard demo case for Region Skåne and part of the ecosystem for advanced nanomaterials in the region which includes Lund University, RISE, MaxIV/ESS and Science Village Scandinavia. The mission of ProNano is to assist industry in the scale-up to production of nanotech-based products and thus help bring new nanotechnology innovation to the market. ProNano currently focuses on III-V (GaN) nanowire-enhanced materials for high power electronics and is looking for cross-regional cooperation to address several challenges associated to substrates, lithography, etching, and characterization.

### **Printed Electronics on metallic 3D objects (Shapetronics)**

The demo-case on SHAPETRONICS is an original idea proposed by CRM group, Wallonia region, and is working on the development of technologies to integrate functionally printed structures directly onto 3D objects. The project aims to develop a technology platform dedicated to benchmarking and exploring new printed fabrication process (subtractive and additive methods) to integrate electronics on large area curved objects. It will build a “platform on 3D tools” in which several 3D printed electronic processes would be available, that can work under severe conditions, like corrosion, abrasion, high temperature, etc. The focus is on printed electronics on metal, as metal can overcome important technological difficulties related to durability, moisture barrier properties (particularly for organic material) and heat dissipation. In addition, metal substrates have potential not only for 2D, but also for 3D printing of electronic materials either by transforming already printed metallic system to final shapes or by directing 3D writing function on the surface of the object. Opportunities especially arise in the areas of automotive and aeronautics who are believed to benefit the most from developments in the area of printed electronics on curved surfaces. Applications in severe environments are possible thanks to the currently available technologies like 3D printing or thermal spray coating.