

Hannover Messe 2010

Jouko Strand 12.5.2010

FORUM “Innovations for Industry” – at MicroNanoTec

FORUM organizer: IVAM Microtechnology Network, Dortmund

Session: Printed Electronics&Printed Intelligence 20.4.2010 13:00-15:00

Organizer: Iin Micropolis Oy, in cooperation with IVAM

Moderation: Jouko Strand, Micropolis Oy, Ii (FI)

Micropolis, innovation and development company in Oulu Region was organizing 2010 for the second time the session, which was focused on disruptive technology of Printed Intelligence & Printed Electronics. Oulu Region is one of most important European hubs on this technology. VTT, PrintoCent and two high tech companies from Oulu Region were describing the art of technology and company-related future oriented activities to the industry’s major players. Micropolis was collecting to the set of interesting lectures also presentations from European research partners from Dresden, Fraunhofer Institute for Photonic Microsystems and Eindhoven, TNO Holst Centre.

The goals of Micropolis in organizing seminar on international trade fair are (i) to strengthen Oulu Region`s position in European leadership on new emerging technology field, (ii) to introduce novel research results of Finish research institutes, VTT as spear head, (iii) to give Finnish SMEs, especially SMEs from Oulu Region, the possibility to introduce their products and skills to international experts and entrepreneurs from around the world.

The Session was performed in abnormal circumstances, when four Finnish lecturers were absent because of travel difficulties caused by volcanic eruption. Presentations were given by those persons available on Micropolis joint stand.

The position of Micropolis as organizer of the Forum Session reflects the succeeded networking with major European Microsystems Network IVAM e.V. Dortmund.

Program:

Large Area Printed Sensors

Antti Kemppainen, VTT Technical Research
Centre of Finland, Printable Electronics and Optics, Oulu, (FI)
Presentation: Antti Tauriainen, Micropolis Ltd

Smart Packaging based on Systems in Foil

Dr. Marc Koetse, TNO Holst Centre, Eindhoven, (NL)

Process Technologies for Advanced Organic Electronic Devices: Microdisplays, Lighting and Solar Cells

Dr. Christian May, Fraunhofer Institute for Photonic
Microsystems (Fraunhofer IPMS), Dresden, (DE)

PrintoCent – Fast Lane to Market

Matti Koivu, PrintoCent, Oulu Innovation Oy, Oulu, (FI)
Presentation: Jouko Strand, Micropolis Ltd

Demonstrator Services for Novel Printed Intelligence Products

Antti Takaluoma, Offcode Ltd, Oulu, (FI)
Presentation: Martin Kögler, VTT

Innovative Optoelectronic Products for Measurements

Matti Tervaskanto, Noptel Oy, Oulu (FI)

Online Optical Measurements for Printed Electronics Production

Heimo Keränen, VTT Technical Research Centre of Finland,
Optical Instrumentation, Oulu, (FI)
Presentation: Asko Marttila, marttilaConsulting, Munich

Theme of Session:

Printed intelligence & printed electronics will create disruptive innovations and opportunities on wide area of businesses. Interesting areas for future applications are optics and lighting, electronics paper, print and packaging products, printed solar cells and fuel cells, batteries and supercapacitor and totally new printed products, which are not existing today e.g. novel high volume smart products manufactured by Roll-to-Roll Printing.

High volume disposable applications will be interesting: disposable electronics e.g. low-cost displays printed on paper and disposable health care products.

Printed intelligence means new technology driven innovations at the cross sections of the paper and electronics industries: manufacture electronic components utilizing roll-to-roll production techniques (**printed electronics**), printing of new functionalities into high volume low cost packaging and printed media applications (**printed functionality**)

Printed intelligence is based on fluid processable materials technology, printing like mass-manufacturing methods, electronics, biotechnology, chemistry, optics, optoelectronics.

Large Area Printed Sensors

Large area sensors are one of the most interesting application of printed electronics due to high volume cost efficient production capacity. The manufacturing processes and potential applications are discussed.

Smart packaging based on systems in foil

Open innovation research institute Holst Centre focuses on wireless autonomous transmission systems and systems in foil. Packaging with electronic functionalities (Smart Packaging) marries these technology areas. The presentation showed how silicon technology can be incorporated into printed foils to form functional packaging for food and pharmaceutical applications.

Process Technologies for Advanced Organic Electronic Devices: Microdisplays, Lighting and Solar Cells

The presentation described the results made at Fraunhofer IPMS on organic light diodes (OLED). The first OLED –products will be on the markets this year as modern light sources. In this process assistance will be given by COMEDD, das Center for Organic Materials and Electronic Devices in Fraunhofer IPMS: to offer Pilot production line – the biggest in Europe-for companies to use.

Besides OLED-lightning the presentation described also the integration of OLED with Microsystems on area of organic Solar cells.

PrintoCent – Fast Lane to Market

The presentation described PrintoCent –practice, how to generate new businesses on new disruptive technology field Printed Intelligence&Printed Electronics

PrintoCent is a business and production environment for companies to manufacture components, products and solutions based on Printed Intelligent processes. Today, there are around 150 professionals working in the PrintoCent community. PrintoCent is a functioning multidisciplinary business development environment. PrintoCent is looking for supplying to industrial partners' global network and thus focuses on product, production and value chain development. PrintoCent combines the printed electronics (printed intelligence) and optical measurements efforts at VTT and the Universities within the Oulu region with business development activities: know-how, R&D, education, and business development.

Demonstrator Services for Novel Printed Intelligence Products

The presentation was about Concept prototype development by using Embedded Linux. The Agile development environment was presented: (i) Wide variety of system integration components. (ii) Software and development tools licences are free (iii) Scalable and distributable development environment (iv) Easy path from prototypes to products.

Offcode Ltd. is a company specialized in embedded systems, tools and software development. Printed intelligence and Embedded Linux is a field where Offcode has developed special skills.

Innovative Optoelectronic Products for Measurements

The presentation described research and product development focused on techniques for the measurement of distance, position, alignment and vibration, made by Noptel Ltd.

The company specializes in the design and manufacture of innovative optoelectronic products based on its own focused technological know-how in the measurement of distance, position, displacement and shape. Laser range finder devices for various application areas like profile measurement, industrial scanners, traffic control, etc. are examples of company's design work. Examples are position-sensitive laser measurement devices for measurement of deflections and vibrations of bridges and towers, too. The products use highly integrated technology.

Online Optical Measurements for Printed Electronics Production

For high volume printed electronics production on-line measurements are essential. The presentation was describing measurement needs for printed electronics' and optics production.

VTT has expertise in the whole development cycle of optical instruments ranging from measurement principles and quick prototyping to final product development. VTT has developed dedicated on-line measurement systems for printed optics and electronics production to analyze substrate properties, registration, print quality and 3D topography. The presentation gave examples of realized on-line measurements at VTT.