

Demonstrator Fact Sheet

Nano-Imprint Lithography

The Research Collaboration project "Nano-Imprint Lithography" within PolyNet aims at showing the feasibility of imprinting organic thin film transistors with sub- μm resolution in a roll-to-roll process. This technological combination goes significantly beyond today's state-of-the-art.

Sub- μm channels enable device speeds beyond 10MHz, which for example are suitable for RFID applications and organic devices with limited mobilities of about 0.1 cm^2/Vs . Furthermore, R2R-fabrication makes industrial scale output possible.



Figure: nano-imprinted channels

The substrate-Gate-Dielectric stack (by Fraunhofer IZM) and the imprint of S/D on top (VTT) are fully carried out by R2R for feasibility demonstration. The finishing of devices with residual etches the S/D metallisation plus lift-off (Joanneum Research) as well as the application of organic semi-conductors (imec, JR) are all performed on lab-scale. Tools for sub- μm imprinting are fabricated at Cardiff University.

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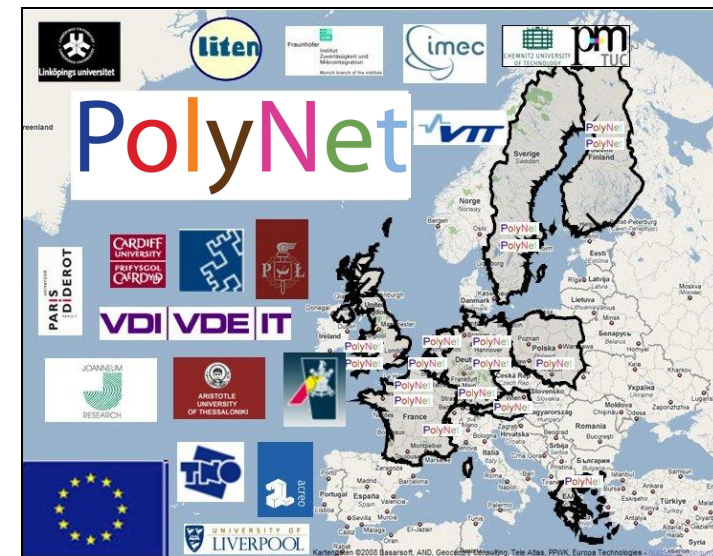
Partners: JR, CARDIFF, FHGIEM, VTT, IMEC, LIVUNI, CEA

About PolyNet

The NoE PolyNet (Network of Excellence for the Exploitation of Organic and Large Area Electronics / OLAE) aims at establishing Europe in the field of OLAE as the world leader in science, technology development and subsequent commercial exploitation of printing and large area technologies for heterointegration of flexible electronics. It has been designed to

- Overcome the fragmentation of the European research landscape in order to foster transfer from science to industry within the EU
- Develop concepts for the continuation of research cooperation and service offers for a long-term integration of the European research landscape

Impact is expected not only on the research landscape of Organic and Large Area Electronics but also indirectly on European industry by long-term stimulation of innovative technologies and new business development.



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The NoE PolyNet receives funding from the European Community's Seventh Framework Programme (FP7/2007-2013) under grant agreement n° 214006.



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