



Newsletter



PolyNet



Quadruga Newsletter

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1. Introduction

Welcome to the sixth issue of the Quadruga Newsletter.

The Quadruga Project is a joint initiative of the European Commission, the Directorate General of Information Technology & Media and 3 Coordination Action Projects and one Network of Excellence within the seventh framework programme: OPERA, Polynet, Polymap and Prodi. The main and common objectives of all four collaborative projects are to foster the position of Europe as the gravitation point in the research of organic & large area electronics, and to strengthen the position of Europe as a main hub in this area. Ultimately the objective is to contribute to the creation of new start-ups and to the creation of a knowledge based European economy with strong comparative advantages.

We hope you find it informative and interesting and we welcome feedback and contributions.

The Quadruga Partners

(For more information and project links go to <http://www.quadruga-org.eu/>).



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2. From the European Commission

LOPE-C

Carl-Christian Buhr, Member of the Cabinet of Ms Neelie Kroes, Vice President of the European Commission, inaugurated this year's LOPE-C Conference and Exhibition, which took place from the 31st of May to the 2nd

of June in Frankfurt/Main. In his speech on the European perspectives in Organic Electronics, Mr Buhr expressed the Commission's strong commitment to continue to invest in science and technology in order to help European companies to innovate and stay competitive.

He explained how Organic Electronics is an example of the technologies needed to achieve the Digital Agenda for Europe, one of the flagship initiatives of The EU2020 strategy for smart, sustainable and inclusive growth, as it is one of the research areas with greatest potential for innovation and economic growth as well as an enabler for creating new highly qualified jobs and improving the quality of life of European citizens.

OE is a new and fascinating technology that enables fresh electronic applications in many fields by providing thin, light-weight and flexible products built on novel but low-cost approaches to manufacture electronics. It uses more readily available and non-toxic materials in low-temperature processes to deliver greener products. Organic Electronics is rapidly growing and extremely fast-moving, and set to be one of the strategic technologies of the 21st century.

The European Commission has recognized the potential of organic electronics for Europe. Through the 6th and 7th Framework Programme in research, the Commission has given financial support of € 220 million to help develop this sector and will continue this support with another € 70 million in the 2011 to 2012 work programme which will be adopted soon.

The OLAE 2010 Cluster/Concertation Meeting will take place on the 14th and 15th of June in Brussels, Ave. de Beaulieu 25. Some 35 Projects working on Organic and Large Area Electronics, financially supported through the European Commission's 7th Framework programme, will present their latest research in organic electronics. This is an excellent occasion for the participants to mix, network, learn about each others' work and prepare for future collaboration. More details are available at http://cordis.europa.eu/fp7/ict/organic-electronic-visual-display/home_en.html

Brussels Expo, 27 – 29 September 2010.

REGISTRATION FOR ICT 2010 NOW OPEN

Special "early bird" rates until 26 June 2010!

Register now for ICT 2010 – Europe's key forum for current and future research visions and trends in information and communication technologies.

- Full 3 days: "early bird" special reduced fee: (until 26 June 2010) : EUR 450
- Full 3 days: Late fee (post 26 June 2010): EUR 550
- Per day: EUR 225

Students, journalists and disabled persons free of charge.

EXHIBITION AND NETWORKING CALLS HUGELY SUCCESSFUL!

On 15 April, the Networking and Exhibition calls for the ICT2010 event closed. The Commission is delighted to have received so many proposals and both calls have been oversubscribed. Thank you for helping us shape ICT2010!

SO WHAT'S NEXT?

The Commission has now completed the review and validation of the exhibit proposals and will notify applicants of the results via email by 11th June 2010. A list of successful proposals will be published on the ICT2010 website a few days later.

We expect proposals that will entertain visitors with strong visual and practical experiences to offer a unique; captivating and attractive experience!

There is still scope for featuring your OLAE technology or devices on the Quadriga stand. For more information, please contact victoria.plompen@plastic-electronics.org

Keep an eye on our website for the list of selected proposals!

Follow ICT 2010 Exhibition developments on the link below:

https://webmail.ec.europa.eu/exchweb/bin/redirect.asp?URL=http://ec.europa.eu/information_society/events/ict/2010/networking/index_en.htm

Networking at ICT2010

The networking proposals have also been evaluated and validated. We will publish a list of valid proposals on the ICT 2010 website in June, where you will be able to post comments on individual networking sessions. Your feedback will help us understand what you are interested in and make each session more effective on the day.

Selected networking sessions will provide you with a forum to exchange ideas and expertise on all scientific and technological subjects directly related to ICT, including FP7, the ICT PSP programme and many more.

Make your contribution to networking forum from June 2010!

Follow ICT 2010 networking developments on the link below:

https://webmail.ec.europa.eu/exchweb/bin/redir.asp?URL=http://ec.europa.eu/information_society/events/ict/2010/networking/index_en.htm

3. Quadriga Partner Project News



Workshop Announcements

Workshop Announcement “Towards standards in the OTFT domain”

A joint workshop organized by the Organic Electronics Association (OE-A) and the OPERA EU-project on the topic of “Quality Control, Measurement, Manufacturing and Standards Preparation for OTFTs” will be held during the 21th working group meeting of OE-A on Sept. 14th, 2010 in Dresden, Germany. See www.oe-a.org. Technical discussion topics will cover the following areas: static OTFT characterization, stress testing, test substrate architectures and geometries, measurement systems, and parameter extractions. There will be presentations given by the following EU-projects OPERA, COSMIC, POLARIC, and FLEXNET. If you want to join the workshop, please send an e-mail to ingrid.willam@vdma.org.

• 25.06.10, 09:30 – 18:00, Messe Basel, Basel “Trinational workshop on Plastic Optoelectronics”

Industrial and academic key players from the Upper Rhine area will meet to discuss recent advances in the field and explore the potential of future collaborations, joint projects, and a cluster formation. This is the third organic photonic workshop from Swisslaser.net and CSEM in Basel. Partners: EU-Projects: OPERA and FLEXNET.

Program and registration: see <http://www.swisslaser.net/workshops.html?342>



InnovationLab Reports on the Forum Organic Electronics

The Forum Organic Electronics supports young entrepreneurs at its first Entrepreneur Training Day. On 20th May 2010, the first Entrepreneur Training Day of the Leading Edge Cluster Forum Organic Electronics took place at InnovationLab in Heidelberg. The event aimed at supporting young entrepreneurs from the cluster to turn their business ideas into start-up companies.

The training event was organized together with the EU-project OPERA. Five groups of young entrepreneurs and twelve high-class and experienced mentors joined, among them venture capitalists, patent attorneys, senior managers, as well as international representatives from the VTT Technical Research Center, Finland, and the Plastic Electronics Foundation, the Netherlands.

Dr. Udo Heider (Merck KGaA) held a keynote followed by a best practice case study by Dr. Michael Geisser

(ubivent GmbH). Later on the founders - all of them researchers in academia or industry - presented their business ideas. In their presentation, the entrepreneurs elaborated on their motivation, their business plan, on the market they want to address, the project funding, and the founding team.

Presentations were followed by individual feedback-sessions. In each of them, two to three mentors were available to each team to provide feedback to the introduced business ideas and to give insights into general aspects of high-technology entrepreneurship. In the final round the young funders introduced the results of the feedback-sessions and stimulated fruitful discussions among the 22 participants.

“For me the open communication with the mentors was very helpful. It was the first time that I could discuss my venture with a venture capitalist, without having the pressure to receive funding. At the same time, I have learnt how a VC firm actually thinks and decides. Thus, I am now well prepared for the next time“ one of the participating founders summarized his experience at the training event.

Following this event, Bernhard Schweizer, Managing Director of InnovationLab, looks in the future optimistically: „We will continue this newly created and successful format of the Entrepreneur Training Day as a permanent service of the Leading Edge Cluster Forum Organic Electronics which will contribute to a higher founding dynamism in the organic electronics area in the Rhine-Neckar Metropolitan Region. “

About Leading Edge Cluster Forum Organic Electronics

We develop the next generation of photovoltaics, lighting and printed electronic components. These systems will contribute to preserve nature by enabling a CO2 free energy conversion and reducing energy consumption by simultaneously offering fascinating new applications.

The cluster focuses on the entire Organic Electronics value chain ranging from the development of materials, the design of devices, and the production of systems (e.g. modules for solar cells) to the sales of applications. The cluster partners, most of them situated in a radius of maximum 90 km around Heidelberg, collaborate in research, development, business development and education through the joint research and transfer platform, InnovationLab GmbH.

This open network for co-innovation consists of a large set of internationally renowned companies and universities and was awarded as a Leading Edge Cluster (Spitzencluster) with € 40 million by the German Ministry of Education and Research in September 2008.

About InnovationLab GmbH (iL)

iL operates the cluster Forum Organic Electronics. It is an application-oriented research and transfer platform of business and science in the Rhine-Neckar Metropolitan region.

It was jointly founded in June 2008 by six globally active companies BASF SE, Freudenberg & Co. KG, Heidelberger Druckmaschinen AG, Merck KGaA, Roche Diagnostics GmbH, SAP AG, and the universities of Heidelberg and Mannheim. All partners are involved in one shared enterprise and have the common goal of driving innovation.

The research strategy of iL integrates the whole value chain of Organic Electronics. The cluster partners collaborate on joint projects in the joint research platform with its specific competence centers. Currently, iL is building up clean room facilities that will be used for its own and the joint research activities of the partners.



PolyMAP project update

In a previous issue of the Newsletter we have reported on the efforts of the PolyMAP project (www.polymap.eu) to make a mapping of national public funding in the field of organic and large area electronics (OLAE). The mapping reveals that most countries in the European Union have national funding schemes in place for OLAE activities and that the total budget available is in the range of 300-500 M€. However, a large part of the national/regional programs related to OLAE appears to have a rather broad scope and shows quite some overlap with other programs. Moreover, it seems that a substantial part of the efforts within the projects is spent on trying to catch up with the state-of-the-art. A general feeling within the OLAE community is that a better coordination of these activities, in combination with a shared research roadmap would lead to a much bigger footprint of the European OLAE efforts and a much stronger position of the European stakeholders on a global scale. One of the aims of the PolyMAP project is to investigate the possibility to line up national and regional programs on a European level in order to achieve a better coordination of resources and to tackle the main challenges in the field in a more efficient way.

Towards trans-national cooperation in the field of OLAE

One of the tools that is available for coordination of national/regional programs on a European level is the so-

called ERANET or ERANET+ scheme. An ERANET consists of a consortium of national funding bodies who organize a joint trans-national call in a research area which is deemed important for the national research policy. In order to gain sufficient critical mass for an ERANET, the PolyMAP team set out to mobilize the main stakeholders in the field of OLAE and the national funding bodies.

The main stakeholders were asked to testify their support for an ERANET initiative in the field of OLAE by signing a support letter. The support letter was distributed at the Quadriga booth at the LOPE-C 2009 and sent by e-mail to the list of stakeholders identified during the mapping phase. In France the support letter was translated into French and sent along with a French translation of the Strategic Research Agenda, which was compiled by the OPERA team, to the main stakeholders. Until now, 56 support letters were signed by various organizations, including universities, research institutes, OLAE competence centers, companies and even national funding bodies.

Several national funding bodies were approached by the project partners directly to discuss the possibilities of trans-national cooperation. The funding bodies from other EU member states were informed about the ERANET initiative via the mirror group of the Photonics21 Unit, in which the EC funding for all OLAE activities is embedded (since 2009). At this moment discussions between the national funding organizations are taking place to determine what would be the preferred way to coordinate a common approach to OLAE. Funding bodies from five different member states have already expressed their willingness to participate in setting up a joint European call for OLAE. This means that the required minimum number of funding bodies for forming an ERANET, i.e. five, has been met. Nonetheless, the discussions with national funding agencies in other EU countries will continue. Some funding bodies have suggested an alternative approach to come to an ERANET+, starting with a small core group and extending it to a bigger number of member states once the call has been established. For a better and more efficient alignment of research topics in a joint European call it is suggested to form a coordination cluster of the nationally-funded research centers in OLAE (such as PETEC, IMEC, Holst Centre, VTT, InnovationLab Heidelberg, Dresden, CEA-LITEN etc.). Such a cluster could furthermore lead to more streamlined efforts in the academic research connected to the OLAE centers, thus further increasing the impact of such a coordination action.

Open-site OLAE information database

The organic electronics industry is still in its infancy. This makes road-mapping for this particular field quite difficult due to the lack of a reliable track record of past results. Therefore, in order to support the present and future road-mapping activities, parallel to the activities aiming at realization of trans-national cooperation, the feasibility of an open-site information database for OLAE was investigated. After a thorough evaluation of the possibilities for gathering and collecting information and the best way to organize and display the content, it has been decided to setup a dedicated open-site information database using an open-source content management system for websites. The website is available at www.polymap.eu/joomla. So far, the community has 22 members and 37 content articles. Please keep in mind that we are still in the process of creating a solid base of initial articles in order to make it attractive for people in the field to frequent the site and to contribute to it. At this moment content articles are being created in collaboration with the Quadriga (PolyNET, OPERA and PRODI). In the near future the OE-a roadmapping workgroups will be involved in this effort, too. If you would like to make a contribution to the website, please feel free to do so.

The information database is making use of moderators who review articles to ensure the quality and reliability of the information. At present the PolyMAP team is actively scouting for moderators. If you would like to become a moderator or know someone who would be suited for this task, please let us know. The open-site information database provides additional and networking functionalities that increase value for the users, such as relevant news items on the site, a newsletter, personal profile pages, members listing, focus groups and a discussion forum. A key differentiator to other similar initiatives has been developed and integrated in the website enabling interactive tables and automated graphing.

Please visit the website at www.polymap.eu/joomla and give us your feedback!

New from  **and** 

PolyNet Research Cooperation Platform

The results of the PolyNet Research Cooperation Platform are available as PolyNet Fact Sheets now. Please check <http://www.noe-polynet.eu/public/cooperation/fact-sheets/> for fact sheets on:

- Thin Film Battery
- Nanoimprint Lithography
- Component Integration
- Laser Ablation

Contact Research Platform: Isak ENGQUIST (isak.engquist@itn.liu.se), Linköping University, Sweden

PolyNet Service Platform

NoE PolyNet and FlexNet plan to organise a workshop on Product Design with Flexible, Organic and Large Area Electronics. The workshop shall take place together with another event OLAE event in UK in September.

Current status of OLAE product design will be introduced by an experienced product designer explains and researchers from applied OLAE research. Currently available building blocks (displays, flexible batteries, OPV modules, ...) will be demonstrated and made available for design trials. The participants will have the possibility to discuss their ideas with participating OLAE experts.
For further information please contact Markku Käsäkoski (VTT / Markku.kansakoski@vtt.fi).

For request to the PolyNet Service Platform please use <http://www.no-e-polynet.eu/public/services/contact-form>

Contact Service Platform: Markku KÄNSÄKOSKI (markku.kansakoski@vtt.fi), VTT, Finland

PolyNet Knowledge Platform

EOOE (European Observatory on Organic Electronics) report No. 4 with selected topics and Conference reports is available. Selected public articles are:

Devices

CNRS – IEMN & CEA - LIST: Nanoparticle organic memory field-effect transistor written by H. L. Gomes / Portugal

Processes – Manufacturing

Umeå University: Organic complementary circuits made easy written by G. Horowitz / France

MIT: Scalable processing of LEDs with tunable colors based on inorganic/organic nanomaterials written by T. Blaudeck / Germany

<http://www.no-e-polynet.eu/public/knowledge/eooe-results/eooe-report-04/>

FlexNet Critical Research Issues

A FlexNet Fact Sheet on Critical Research Issues is available. The Fact Sheet summarises all current results of Work Package on Critical Research Issues (CRI). FlexNet uses these findings in order to create new research foci.

<http://www.no-e-flexnet.eu/public/critical-research-issues>

FlexNet Platform on Materials and Devices Integration

The Materials and Devices Integration Platform is dealing with critical research issues such as FOLAE-specific materials with emphasis on their interfaces and integration into FOLAE devices:

- organic semiconductors
- dielectric devices
- electrodes
- barrier materials
- substrates

This progressive work will also be tracked by demonstrators.

Contact Materials and Devices Integration Platform: Jacek ULANSKI / Jacek.Ulanski@p.lodz.pl / Technical University of Łódź, Poland

FlexNet Platform on Systems Integration / Round Robin Testing to implement a standard for OTFT characterization in the European scientific landscape

It is not easy, and in some case even impossible, to compare the results from different laboratories today. Therefore, standardised test structures and standardised measurement protocols for round robin testing will be developed in the project FlexNet. This is an important step towards a standardised measurement protocol, which intends complementing the existing IEEE 1620-2004™ standard. Expected results are a standardised measurement protocol and a standard OTFT test structure to be spread amongst Europe via all partners of the network of excellence FlexNet.

<http://www.no-e-flexnet.eu/public/systems/fs-round-robin>

Contact Round Robin Testing: Zbigniew SZAMEL / zbigniew.szame@csem.ch / CSEM, Switzerland

Contact Systems Integration Platform: Terho KOLOLUOMA, Terho.Kololuoma@vtt.fi / VTT, Finland

FlexNet Incentive Workshops started

FlexNet organises so-called Incentives Workshops in Middle West and South East European countries in local languages in order to convince relevant industrial companies to integrate FOLAE activities.

The first Incentive Workshop was held on April 22, 2010 in Warsaw, Poland and it preceded the 1st Polish ODEE (Organic, Printed and Elastic Electronics) Conference. The Workshop was addressed to students, young researchers and especially to the industry representatives, not only from the electronic industry. The purpose of the Workshop was to demonstrate the existing industrial application of the organic electronics and to point out the perspectives for Polish companies to join this innovative industry domain. There were ca. 90 participants including 16 industry representatives (from 8 companies and R&D institutes). All lectures were given in the native language (Polish).

The lectures start from a short description of the NoE FlexNet and PolyNet Projects. The main seminars were given by the representatives from European companies and laboratories which have already implemented the production of organic electronics: Dr. Zbigniew Szamel from CSEM and Dr. Wojciech Pisula from EVONIC Industry. Stimulating discussions prove a real interest from the audience. In the last lecture short review of the Polish scientific entities strongly involved in the research in the field of organic electronics was given by Prof. Jacek Ulanski from TUL.

<http://www.noeflexnet.eu/public/knowledge/fs-ws-warsaw>

The FlexNet Incentive workshops are planned to be continued in

- Switzerland June 25th (Basle)
- Czech Republic in June 2010 (Prague)
- Greece July 11th (Thessaloniki)
- Austria in September 2010
- Italy in October 2010
- Spain in February 2011

Contact: Bertrand FILLON bertrand.fillon@cea.fr / CEA, France

PolyNet and FlexNet Events

PolyNet and FlexNet at LOPE-C 2010, Frankfurt (Main)

The Networks of Excellence PolyNet and FlexNet both attended the fair LOPE-C from May 31 to June 2, 2010 in Frankfurt (Main), Germany. During the fair and under the roof of the Quadriga, PolyNet and FlexNet are presented latest highlights in the area of Flexible, Organic and Large Area Electronics (FOLAE). On site, demonstrators made the newest achievements in FOLAE more tangible for visitors, merchandisers and experts.



Figure: PolyNet and FlexNet at Quadriga Booth at LOPE-C 2010 (courtesy of Prof. Stergios Logothetidis)

In particular, the following demonstrators were shown: thin film batteries, component integration and Nanoimprint lithography. Please find PolyNet fact sheets at <http://www.noe-polynet.eu/public/cooperation/fact-sheets/> What is more, PolyNet and FlexNet are also presented their special services for SMEs.

PolyNet & FlexNet events and summer schools 2010

=> ICOE 2010 in Paris, France from 22 - 25 June 2010 with one day summer school focused on OLAE design and simulation: <http://icoe2010.polytechnique.fr/>

=> IS-FOE 2010 in Halkidiki (Greece) from 10-17 July 2010 with four day summer school on all OLAE topics: <http://isfoe.physics.auth.gr>, <http://nnconf.physics.auth.gr/issonn.html>

General Information on PolyNet and FlexNet

The Networks of Excellence (NoE) PolyNet and FlexNet both aim to make Europe a world for organic and large area electronics in science, development and subsequent commercial exploitation. For that purpose the fragmentation of the European research landscape has to be overcome. Therefore, bringing together partners is a core objective of both networks, which altogether include 28 partners from 16 countries.

PolyNet supports these aims with three platforms:

- a research cooperation platform
- a service platform
- a knowledge platform

FlexNet emerged from PolyNet. While the latter more focussed on partners from western and northern Europe, FlexNet wants to distribute knowledge to European research and industry stakeholders in southern and eastern Europe, especially to SMEs. This makes FlexNet a catalyst for information transfer between west-central and south-eastern Europe. In particular, FlexNet deals with the following objectives:

- FOLAE Materials and Devices Integration
- Systems Integration
- Knowledge, Dissemination and Transfer to industry

Further information about FlexNet and PolyNet: www.noe-flexnet.eu resp. www.noe-polynet.eu.

Contact: Dr. Lars Heinze, VDI/VDE Innovation + Technik GmbH, Steinplatz 1, 10623 Berlin, Germany, Tel. +49 30 310078 165 +49 30 310078 165 +49 30 310078 165 +49 30 310078 165 , Email: heinze@vdivde-it.de



PRODI presents its work on equipment requirements

Since 2008 the PRODI project has investigated and compiled current status future requirements for roll-to-roll manufacturing in printed, polymer and large area electronics. Being aware that the manufacturing requirements for electronic systems will be much more challenging than in traditional printing systems, the PRODI partners supported by their Industrial Advisory Board have highlighted comprehensively the future needs for processing, automation and measurement instrumentation. Due to the diversity in polytronic applications the investigation has concentrated on three major application fields – organic solar cells, electrochromic displays and organic transistors for display backplanes. However many of the identified demands will be generally valid for future large-area manufacturing approaches.

For discussion and refinement of these project results PRODI partners have now scheduled a meeting with its industrial network partners on the occasion of LOPE-C. It will take place on 31st of May at 15:30 within the Congress Center in Frankfurt/Main. Interested parties are welcome to join this short meeting (please contact gerhard.klink@izm-m.fraunhofer.de)

The finalised outcome of the project will be disseminated in PRODI's Annual Workshop and Seminar, which will be held this year in Munich from 4th to 6th of October. The event will focus roll-to-roll technologies and their chances and challenges for manufacturing. For more detailed information see our website www.project-

Modeling of Variations in Devices for Organic and Large-Area Electronics

Location: IMEC

Kapeldreef 75, 3001 Leuven, Belgium

<http://www.imec.be>

Time: July 12 & 13, 2010

Objective of the workshop:

Organic transistors have much broader variations than classical transistors. If one does not take this into account, large circuits on foil will never have a decent yield. More specific, it is known that the printing processes introduce additional variations on the devices which hamper performance and reduce yield. However, clever design can cope with these inherent variations and, as a consequence, overcome the limitations imposed by printing. The aim of the workshop is indeed to discuss these design issues in order to obtain larger working organic circuits.

Role of the workshop in the scope of the EC funded PRODI project:

Organic and large area electronics is an emerging field for future applications, where fabrication of polymer devices, printing processes and roll to roll manufacturing are key elements for future applications. The technology behind requires new and innovative manufacturing machinery for high volume and cost efficient production. However, advanced production technologies are not able to overcome all challenges. The gap to the working product needs to be bridged by good circuit design.

Workshop registration:

You can access the PRODI workshop on transistor variations free of charge. However, registration is required.

Please register for the PRODI workshop by email to: inge.jariviere@imec.be

Please select when registering for the workshop if you will only attend the first day or both days. If you attend both days, please bring SEM pictures of the source drain pattern (in electronic format) of typical transistors in your own process. These SEM pictures will be used in the practical session on variation estimation.

Registration deadline: July 1, 2010

Workshop program day 1:

14.00 Welcome and coffee

14.15 Jan Genoe Workshop introduction and objectives

14.30 Kris Myny Design of a 64 bit organic RFID tag

In this talk, we show the path from a detailed study of the parameter variation of organic devices over a wafer towards the design of a full organic RFID tag coupled to the RF field by an inductive antenna. For several sets of estimated transistor variations, calculated circuit yield as a function of power supply voltage will be shown for different code generator designs (8bit, 16 bit, 32 bit, 64 bit). The corresponding measurements after circuit fabrication as a function of power supply voltage will be shown.

15.15 Soeren Steudel Dielectric Roughness

Soeren Steudel published his finding on how the dielectric roughness was degrading the performance of pentacene organic transistors back in 2004 [1]. Subsequent authors have observed a corresponding relationship for multiple other organic semiconductors. As a consequence, one can pinpoint dielectric roughness and dielectric thickness variations in the printing processes as one of the sources of device variations and eventually low circuit yield.

15.45 coffee break

16.00 Alessandro Vaglio Pret Roughness analysis for Optical Lithography Alessandro Vaglio Pret is investigating the relationship between the roughness of the EUV optical lithography and transistor current variations in advanced 22 nm Silicon CMOS processes. This is at a source drain patterning resolution that is about 1000 times higher than what is currently reachable in printing processes. But as the roughness of a printed source drain contact is also about 1000 times higher than what is obtained by advanced optical lithography, one can easily port his results from the advanced CMOS world to the organic transistor world. We will use the results of his analysis for the estimation of the current variations due to printed source drain contacts.

16.30 Iryna Yakimets Dimensional stability of foils.

Maintaining dimensional stability is crucial during the processing of circuits on foil, as the gate and the source drain of a transistor are patterned in a different step. Variations in dimensions during this processing will

inherently yield variations between transistors. In this presentation, an analysis of the dimensional stability on foil will be given, and consequences on the circuit variations and yield will be given.

Workshop program day 2:

9.00 – 11.00: Estimation of transistor current variations based on experimental printing results.

The second day of the workshop is implemented as a practical session. Attendants bring their own set of SEM pictures of the source drain pattern (in electronic format) and an estimate is made for the relative transistor to transistor current variations. This can be combined with an estimate of the mobility degradation when the attendant brings also a set of AFM pictures (in electronic format) showing the roughness of the gate dielectric.

[1] Soeren Steudel, "Influence of the dielectric roughness on the performance of pentacene transistors." *Appl. Phys. Lett.*, vol. 85, p. 4400, 2004.



SYSTEX workshop on **"Strategies to foster commercialization of smart textiles in Europe in healthcare lead market"**

Plastic electronics foundation, one of the consortium members of EC funded project "SYSTEX" has conducted a multi-stakeholder workshop on "strategies to foster commercialization of smart textiles in Europe in healthcare lead market" on 18th January, 2010 in high tech campus, Eindhoven. The main focus of the workshop was commercialization of smart textiles in healthcare lead market, which is earmarked as one of the four high potential lead markets for smart textiles by the consortium. The workshop was attended by experts representing different stakeholder communities of the smart textiles value chain like smart textiles integrators, research organizations, universities and industry associations.

The main objectives of the workshop was to find about the hurdles and challenges the smart textiles stakeholders face during the commercialization of smart textiles in Europe and to recommend some strategies to European Commission and other governing bodies that can foster commercialization of smart textiles. The workshop was divided into two sessions and each session was conducted with certain objectives. During the morning session, all the participants were asked to discuss about the various barriers and challenges faced by the value chain members of smart textiles. To find out these, two participants representing two different communities were asked to present their perspectives of various problems and challenges they face for the commercialization of smart textiles. Afternoon session was about designing strategies to foster commercialization of smart textiles in Europe. For this, the workshop participants were divided into three equal groups with participants from different backgrounds. Each group is asked to design strategies that can solve the major issues that came out of morning session.

As a result of discussion in the morning session, the participants came out with the list of problems that are hindering the process of commercialization of smart textiles in Europe in healthcare lead market:

- The companies in the smart textiles value chain lack power to influence or motivate the other members in order to develop and commercialize the smart textiles products or applications. This lack of power structure is resulting in lack of cooperation and collaboration among the value chain members and is increasing the time to market of smart textile enabled products.
- smart textile based solutions/applications that can be used by the users or consumers in the same way as they use the traditional textiles.
- Lack of direction, vision, market orientation and clarity about the applications of smart textiles or end-user markets among the smart textiles developers is considered to be one of the important issues that is hindering the development and subsequent commercialization of smart textiles.
- The smart textiles industry is comprised of mostly SMEs and spin-offs and these companies are not able to succeed in commercialization of smart textiles based applications due to lack of financial and personnel resources, expertise outside their specialized field, access to the end-user markets, lack of cooperation of value chain members who are interested in collaborating in the innovation, and brand recognition in the retail market.
- Lack of commercialization of smart textiles in medical market is basically due to the nature of health care industry which is bureaucratic and highly complex.

During the afternoon session, the participants were divided in to three equal groups consisting of participants representing different value chain stakeholder communities. The groups came out with following list of strategies which in their opinion might lead to successful commercialization of smart textiles.

- The lead company should be an established brand name that can act as a link to the market which is vital for the commercialization of the new technologies like smart textiles.
- The European smart textiles sector is made up of small and medium enterprises which are either spin offs from universities or research institutes, or a SME started with a technological idea. Therefore, the SMEs

should be stimulated to participate in the development and subsequent commercialization of smart textile based applications with new ways of public funding like, for instance, giving subsidies, tax-breaks and guaranteed annual breaks for some period like in the sector of infrastructure.

- In order to create awareness among the market, it's imperative to create awareness among the user groups, both consumers and professional users alike. One of the ways of creating awareness and generating interest among the user groups is by means of demonstrations of successful prototypes and let the users experience the demos.

- Promoting smart textiles as one of smart technological options across all the medical disciplines like pediatrics, orthopedics etc. is one of the strategies of promoting smart textiles for the medical applications. Developing different smart textile applications and demonstrating different aspects to all the medical professional users on how the smart textiles fit in their field of interest might lead to acceptance of smart textile applications and subsequently leading to the commercialization of smart textiles in the healthcare lead market.

- There is a need to redefine the role of textile companies as the textile companies are less willing to take risk when compared to other industries and they are more inclined to be a sub-component supplier in the smart textiles rather than assuming the lead role in the development of smart textiles. Therefore the focus should be shifted to the other technology companies and the textiles should be promoted as just a carrier of electronic components and sub-component supplier.

- Large scale demonstrations of smart textile based applications will ultimately leads to creating broad awareness about the new applications, clearly demonstrate the benefits of the applications, boost the public acceptance of the smart textile based medical applications, determines the cost effective and energy saving practices and evaluates the new financing and new contracting models. This ultimately leads to the commercialization of smart textile based applications/products.

- The government or funding agencies should bring out new policies to foster good investment environment for public and private parties to come together and invest in the facilities and product development activities. One of the ways of doing encouraging PPPs is by funding a R&D activity partially and asking companies with complementary capabilities to invest part of the total amount and bringing all the companies in the value chain together to develop a prototype or test-production.

- Establishment of clusters is strategy with a clear focus on the development and commercialization of smart textiles applications or products with investments by the participant companies and duly backed up by the government. The establishment of clusters will help in creating synergies by getting all the partners in the value chain together, share the facilities and understand the requirements of the partners up and down in the value chain and develop applications or products with the sole intention of commercialization.

The workshop concluded with the impression that the smart textiles industry is in the early stages of development and there is no clear vision in the industry to carry out the development of applications. And most of the developments in the smart textiles sectors are being developed either with public funding or because of the hype created. For the successful commercialization of smart textiles, the participants feel that some policy level changes like bringing out new short term instruments and funding schemes, and new initiatives like establishing special interest groups to guide the smart textiles sector are required.

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4. General News and Positions Vacant

University of Dresden

At the Faculty of natural sciences, physics department, the position

Junior Professorship (W 1) for Organic Semiconductors (with tenure track)

is to be filled as soon as possible for an initial period of 4 years by a person working in the field of the physics of organic semiconducting materials, in particular the electronic proper-ties of e.g. polymers, oligomers, graphene, or other comparable materials. A close coopera-tion with the existing activities at the TU Dresden, other research institutes in the region, and the network "Organic Electronics Saxony" (www.oes-net.de) is desired. We are looking for an outstanding young scientist, who has already conducted independent research in the field of organic semiconductors. The successful candidate is required to represent the discipline mentioned above in research and teaching. Initially, the candidate will be required to teach 4 academic hours a week.

The applicants must fulfil the employment qualification requirements of the Higher Education Act of Saxony (namely of § 63 SächsHSG). With the positive evaluation an extension of employment for the total of 6 years is intended. Within an option for tenure track full employment as a W2/W3–Chair is possible without further advertisement. The decision for such an employment is taken after a period of five years of the Junior Professorship (§ 59 par. 2 SächsHSG). (For information please call 0351 463-37533)
Applications from women are particularly welcome. The same applies to disabled people.

Please send your application until August 9, 2010 (stamped arrival date of the university central mail service applies) to: **TU Dresden, Dekan der Fakultät Mathematik und Naturwissenschaften, Herrn Prof. Dr. Bernhard Ganter, 01062 Dresden**. Your application should include a CV, a list of publications, copies of the five most important publications, a list of teaching activities, copies of certificates and references as well as, if possible, teaching evaluation forms of the last two terms as hard copy and on CD.
Please send also an electronic copy of your application to Prof. Leo at leo@iapp.de

Note: Initially, lectures can be held in English so that a knowledge of German language is not necessary. However, the willingness to learn German would be appreciated.



Plastic Electronics Foundation announcement: Dresden 2010 Conference

The Most Important Global Organic Electronics Conference and Trade Fair to be held in Dresden
The Plastic Electronics Foundation (PEF) in collaboration with Organic Electronics Saxony (OES)
brings this outstanding worldwide technology & business event to Saxony.

The 6th edition of the Global Plastic Electronics Conference & Exhibition takes place from 19 - 21 October 2010 at Messe Dresden in Dresden, Germany and for the first time it will be held together with the SEMICON Europa 2010. Dresden will become an international focus for new developments in the electronic industries in this important week in October. About 8000 professionals from science and industry are expected to attend the combined event.

The Plastic Electronics Conference & Exhibition 2010 brings together worldwide expertise with leading global research scientists and top-class industry partners. The program will include speakers from Philips Lighting, Osram, Merck, Samsung, Cambridge University and Stanford University to mention just a few of the highlights. Additionally there will be more than 100 further lectures from prominent experts recognized for their outstanding achievements in this field. The 6 topic areas will be: organic electronics, displays, organic photovoltaics, lighting, integrated smart systems and mixed organic-inorganic electronics. The adjacent exhibition offers the opportunity to present your demonstrators, services and products to this targeted audience as well as unique, unparalleled networking opportunities.

The Plastic Electronic Conference & Exhibition 2010 and the SEMICON Europa 2010 are combined at the "Converging Electronics Week". Within this dual-hosted and dually-organised event, there will be enterprise-tours to local businesses and expert workshops on organic electronics and semiconductor technology in addition to both conferences.

Dresden is already one of the most important European locations for organic electronics and belongs within the Top-5-locations in the international field. More than 850 specialists are working in one of Saxony's fastest growing high-tech industries today. With its close network of universities, research-facilities and businesses, Saxony is destined for excellent knowledge transfer within this area.

About Organic Electronics

In Organic Electronics new organic molecules and polymers instead of silica and other inorganic semiconductors are employed to fabricate electronic devices. They are based on aromatic hydrocarbons, which are synthesized in laboratory and contain no polluting materials such as heavy metals, for example mercury. The organic electronic is a very young technology with promising prospects. There are possible applications, in part already in the market, from organic light emitting diode (OLED) over organic solar cells to products of display- and memory-fields.

About OES – Organic Electronics Saxony e.V.

The competence network, founded in 2008, represents the interests of the largest European cluster of organic

semiconductor. The network combines local, midsize companies as well as some of the most important, global players working in the field of organic electronic research and development in Saxony. OES supports specifically the internal know-how-transfer in R&D and offers a platform to boost the existing global market position successfully and efficiently. www.oes-net.de

About PEF – Plastic Electronics Foundation

The Plastic Electronics Foundation is a not-for-profit organization whose main objective is to promote the technology of printable, organic based flexible electronics into marketable applications and products worldwide. For more information please contact victoria.plompen@plastic-electronics.org

About SEMICON Europa 2010

As the global microelectronics industries prepare for recovery and the next industry upturn, the European market stands especially well-positioned to take advantage of new economic growth. European companies are leading the world in the development of cutting-edge microelectronics applications and manufacturing technologies. SEMICON Europa connects them to your products and your solutions. As the leading European exposition for microelectronics manufacturing, and with an expanding focus on growing markets including MEMS, printed/flexible electronics, solid state lighting, and related technologies, SEMICON Europa is the ideal venue to showcase your technologies in front of a highly qualified and diversified audience of engineers, fab managers, researchers, executives, and other key decision-makers. www.semiconeuropa.org

Contact:

Mrs Jitka Barm, Public Relations, Organic Electronics Saxony,

Email: barm@oes-net.de Phone: +49 (0)351 / 46677-187 +49 (0)351 / 46677-187 +49 (0)351 / 46677-187 +49 (0)351 / 46677-187

Event Website: <http://www.plastic-electronics2010.com/>



LOPE-C 2010 – Complete success

After 3 successful days, LOPE-C 2010 – international conference and exhibition - has come to a close with attendee numbers up 30% and an exhibition space up 50% on last year. From May 31 – June 2, 2010 in Frankfurt, 89 companies demonstrated, on a display area of 1,100 square meters, their newest developments and products in the field of organic and printed electronics. The conference was with 180 presentations and 850 attendees once again the forum for experts from science and industry. The facts show that the event has proved itself to become the worldwide leading conference and market place of the industry.

The 2010 statistics at a glance:

Exhibition space: 1,100 sqm

Exhibitors: 89 from 13 countries

Conference presentations: 180 from 30 countries

Attendees: 850 from 30 countries

Detailed analysis will be available by the end of July following in-depth evaluation of the event. LOPE-C 2011 will take place from June 28 - June 30, 2011 on the Frankfurt exhibition grounds, Germany.

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www.lope-c.com



Clusterplast Announcement

Clusterplast final event, June 28-29th, Lyon (France): please find enclosed the preliminary program and note that registrations have to be done through the following website www.clusterplast.eu

Monday - 28 June 2010

- 09.30-10.00 Registration and Welcome coffee
 10.00-11.00 Opening session
 Jean-Jack Queyranne, President of the Rhône-Alpes Regional Council (France) TBC
 Pierre Godin, Policy Analyst, Thematic coordination and innovation, DG Regional Policy
 (European Commission)
 11.00-12.30 Plenary session "Cluster experiences in Plastic industry"
 Moderator: Frédéric Gaffiot, Vice Director, Department of Research, technologies, economy,
 Rhône-Alpes Region (France)
 "Lessons learned from Clusterland", Lucia SEEL, Coordination EU projects, Clusterland
 (Austria)
 "Cluster experience in the tooling industry", Rui Tocha, General Director, Centimfe (Portugal)
 "Expectations when building a new cluster (Plastival)", Francisco Ferrando, Head of Unit,
 European Programmes and competitiveness, Impiva, /
 van Rosello, Technology transfer office, University of Alicante,
 Pedro Vazquez, Manager Director, Ferro Spain, S.A (Spain)
 12.30-14.00 Lunch
 14.00-15.30 Plenary session "CLUSTERPLAST project outcomes and findings"
 Moderator : Elsa Henriques, Professor, Ist (Portugal)
 "Overall project summary", Caroline Barnay, Coordinator of Clusterplast project, Rhône-Alpes
 Region (France)
 "Lessons learned from clusters experiences and practices", Patrick Vuillermoz, General
 manager, Plastipolis (France)
 "Presentation of the proposed Joint Action Plan", Piero Cavigliasso, Director, Proplast (Italy)
 15.30-16.00 Break
 16.00-18.00 Parallel sessions (4)
 1 - RTD projects and infrastructures
 2- Education, learning and mobility
 3 - Technology and knowledge transfer
 4 - Entrepreneurship
 18.00-19.30 Transfer to hotels and restaurant
 19.30 Dinner

Tuesday - 29 June 2010

- 08.30-09.00 Registration and Welcome coffee
 09.00-11.00 Plenary session "European and international initiatives"
 Moderator: Olivier Brunet, Policy / Programme officer, Regions of knowledge and research
 potential, DG Research, (European Commission)
 "Experience of cluster development in the United States", Wayne Earley, Executive Director,
 Ohio Polymers, (United states)
 "European Network of Excellence on micromanufacturing", Markus Dickerhof, Micro Nano
 Knowledge Management Group, Kit (Germany)
 "Development of intercluster cooperation's at European level", François Xavier Level,
 President, Europa Intercluster, (Belgium)
 "Manufuture", José Carlos Caldeira, Chairman of Manufuture's National and Regional
 Platforms Group (European organisation)
 11.00-11.30 Break
 11.30-13.00 Plenary round table " Expected impacts of cluster policy on business and territory
 development"
 Moderator: Marc Rohfritsch, French Ministry of Industry (France)
 Summary of parallel sessions
 • Bertrand Fillon, President of Plastipolis Scientific Committee, CEA (France)
 • Marie Curie Actions representative (European Commission)

- Stefan Chudoba, Director, Autoklaster West Slovakia (Slovakia)
- Michel Ganoote, European Delegate, Strategy and Development - TACTICS coordinator - FP7 SMEs National Contact Point, International Department, Oséo (France)
- R&D testimonies
- Giovanni Camino, Professor, Politecnico de Torino (Italy)
- SME testimonies
- Daniel Goujon, President, GPACK (France)
- Large companies testimonies
- Pedro Vazquez, Manager Director, Ferro Spain, S. A (Spain)
- Regional political speakers
- Thierry Philip, Vice-President, Research, Social, Health and High Education, Rhône-Alpes Regional Council (France) TBC
- Jean-Louis Gagnaire, Vice-President, Economic development, Industry, Smes (France) TBC
- Portugal's National Strategic Reference Framework (COMPET Program) TBC
- Francisco Ferrando, Head of Unit, European Programmes and competitiveness, Impiva (Spain)
- European political speakers
- Pierre Godin, Policy Analyst, Thematic coordination and innovation, DG Regional Policy (European Commission)
- Olivier Brunet, Policy / Programme officer, Regions of knowledge and research potential, DG Research (European Commission)
- 13.00-13.15 Closing speech
"Economic expectations, vision for the future", TBD
- 13.15-14.30 Lunch
- 15.00-17.30 Company visits
- Prop. 1: SIGMATECH: R&D center of Plastic Omnium Auto Extérieur
- Prop. 2: TORAY FILMS EUROPE: market leader in polyester films
- Prop. 3: UNIVERSITY LYON 1: including polymer materials laboratory



IS-FOE10

7-9 July 2010, Eagles Palace Hotel, Ouranoupoli, Greece

Website: <http://isfoe.physics.auth.gr>

IS-FOE is the premier Scientific & Research event in Organic Electronics and it is organized by LTFN and the Plastic Electronics Foundation, whereas it is supported by the Projects Flexonics, OLAtronic, PolyNet and OPERA.

This year's IS-FOE will take place in Eagles Palace Hotel (www.eaglespalace.gr), a fantastic resort in front of the beach at the foot

of Mount Athos of Halkidiki, and almost ~120 km from the Macedonia Airport.

The IS-FOE10 will consist of several events, including:

- Plenary & Keynote Presentations
- Oral Presentations
- Main Scientific Symposium including peer-reviewed sessions and round tables for discussion
- Special Sessions with top-level presentations from EC Project representatives
- Poster Sessions
- Exhibitions from several companies in the field
- Special Session: Strategy and R&D Projects in Europe, USA and Asia in Flexible Organic Electronics!

The IS-FOE is the premier scientific & research event in the areas of flexible organic electronics and showcases the latest developments in the fields of:

- Organic electronic materials (small molecule & polymers)
- Organic Multifunctional Materials
- Organic/inorganic and hybrid materials and systems
- Flexible substrates & encapsulation methods & materials

- Molecular electronics & Photonics
- Self-organized molecules and systems
- Theory & Modelling (materials, components and devices)
- Manufacturing processes (printing, vacuum, chemical) & quality control processes
- Flexible Displays & Lighting
- Flexible Solar Cells & Batteries
- Flexible Circuits & Sensors
- Flexible RFIDs & Smart Textiles
- Integrated Smart Systems

Submission of Abstracts

To submit your abstract, download the IS-FOE10 ABSTRACT TEMPLATE from:

http://isfoe.physics.auth.gr/documents/IS-FOE10_ABSTRACT_TEMPLATE.doc

Abstracts must be sent by e-mail to: alask@physics.auth.gr

Selected papers presented in IS-FOE will be published after peer-review in an International Scientific Journal.

For more details, please visit the IS-FOE10 website: <http://isfoe.physics.auth.gr>

On behalf of the Organizing Committee we look forward to your submissions.

Best Regards,

Stergios Logothetidis

IS-FOE Chairman



5. How to join the Quadriga Associated Network Members

Offer to become a member of the Quadriga Associated Network on Organic and Large Area Electronics

The Quadriga Project is a joint initiative of the European Commission, the Directorate General of Information Technology & Media and 4 Collaboration Action Projects within the seventh Framework Program: OPERA, PolyNet, PolyMap & Prodi [See also www.quadriga-org.eu]. The main objectives of all four collaborative projects is to foster the position of Europe as a gravitation point in the research of organic & large area electronics, to strengthen the position of Europe as a main hub in this area and ultimately to contribute to the creation of new start-ups and to the creation of knowledge based employment. The first OLAE newsletter which was published by the EU is now available on the website. Contributions for the second are welcome and we will endeavor to include all relevant news submitted.

Here are just a few of the benefits offered:

- You will receive newsletters on the topic area of large area and organic electronics regularly, but at least three times a year;
- You will receive first hand information and participation details about Networking Events organized by the EU;
- You will receive advanced information about Quadriga Workshops on the topic area;
- You will receive preferred registration information about all Quadriga events

Please go to the following at www.quadriga-org.eu/index.php?id=12&lang=EN to register

Quadriga Events Calendar

Imecc Technology Forum (ITF2010)

8 - 10 June 2010.

The Hilton Antwerp, Belgium

<http://imecc.fb.email.addemar.com/c752/e77608/h0c9c0/113235/index.html> for more information and to register.

VII International Krutyn Summer School 2010

22 -28 June 2010

Krutyn, Masurian Lake District, Poland

<http://ikss.ichf.edu.pl/OLED2010/> and <http://ikss.ichf.edu.pl/OLED2010/>

International Conference on Organic Electronics ICOE 2010
June 22-25, Université Paris Diderot, Paris, France and ICOE Summer School
22 - 25 June 2010
Université Paris Diderot, Bâtiment Buffon, rue Hélène Brion, 75205 Paris cedex 13, Paris, France
For further details please email: icoe2010@univ-paris-diderot.fr

3rd International Symposium on Flexible Organic Electronics (IS-FOE10)
7-9 July 2010
Eagles Palace Hotel, Ouranoupolis, Halkidiki, Greece. (located on the eastern peninsula "Athos".)
<http://isfoe.physics.auth.gr/>

IS-FOE Summer School
7 - 9 July 2010
Eagles Palace Hotel, Ouranoupoli, Greece
Website: <http://isfoe.physics.auth.gr>
Abstract Submission Deadline: 20 April 2010!

6th Global Plastic Electronics Conference & Exhibition
19 - 21 October 2010
Messe Dresden, Germany
<http://www.plastic-electronics2010.com/>
www.converging-electronics.org

The next issue of the Quadriga Newsletter will be released in November 2010. If you have any news or wish to have an event included in the "Upcoming Events" section, please email copy to victoria.plompen@plastic-electronics.org before 26th October 2010.
We would like to thank all contributors for their work.

For more information on Quadriga please go to <http://www.quadriga-org.eu/>

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