NEWSLETTER of the SID-MID EUROPE CHAPTER

SID-ME

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SOCIETY FOR INFORMATION DISPLAY

Display Research in Europe

Usually the main part of the SID-MEC newsletter is formed by reports on the yearly spring or fall meeting conference of the chapter. This fall many members of the European display community meet at Eurodisplay'05, in Edinburgh, and no separate SID-MEC fall meeting is organized. This occasion is used to illustrate the regions display research scope with contributions from a few larger projects.
News from FlexiDis, a EU funded integrated research project where more than 20 research groups collaborate to realize flexible active matrix displays, is given by Eliav Haskal.
Michael Becker involved in ADRIA, the advanced displays research integration action, explains the need for and benefits of European display competence mapping. A contribution by Larry Weber on European SID award winners in 2005 shows the wide recognition of outstanding research quality in many cases. Finally, the call for the SID-MEC student award gives an opportunity for a rewarding career start in the exciting and flourishing field of European display research.

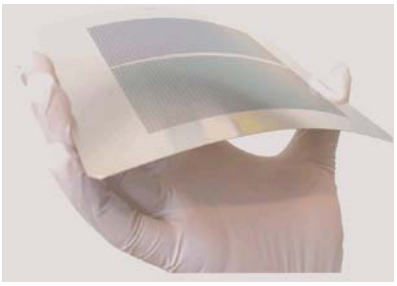
Gerrit Oversluizen

News from the FlexiDis Project

Funded from within the European Commission's IST program, the Integrated Project FlexiDis, or "Flexible Displays", is targeting the fabrication of flexible active-matrix displays. Flexible displays can be understood to be unbreakable, ultra-thin, non-rectangular, non-flat, conformal, bendable and even rollable displays, but in all cases there is in-depth research required to make these devices a reality.
Our goal is to develop the novel process technologies required for flexible displays, along with a fundamental understanding of their mechanical behavior and reliability. And, of course, manufacturing methods must be developed that are realistic and practical, which can also be moved into production quickly with mobile, wearable, automotive or other consumer displays as the product targets.
"The research on novel materials, devices, handling and production methods for flexible displays will enable us to break through the capital-intensive, high-investment factory model currently true today in the Far East," says Eliav Haskal, coordinator of FlexiDis. "This project is therefore meant to advance display R&D in Europe, with the express purpose of strengthening display manufacturing in Europe."

Within the course of FlexiDis, several different types of active-matrix displays will be fabricated, including

- Full-color organic light-emitting displays (OLED) on bendable metal (see photo) and/or plastic foils with sili con thin-film driving transistors



Processing of low-temperature poly-silicon (LTPS) on metal foil (courtesy of CEA-LETI)

- electrophoretic (EP) monochrome displays on bendable and rollable plastic substrates with organic thin-film dri ving transistors; a photo of a recent prototype demon strated at the IFA Berlin'05 is shown below.

Polymer Vision's READIUS™ can unroll its display to a scale larger than the device itself. (Courtesy of Polymer Vision / Philips).

The manufacturing technologies include TFT fabrication via the direct deposition of low-temperature poly-Si and micro-crystalline-Si on metal foil, and microcrystalline-Si on plastic with OLEDs, and vacuum evaporation of organic semiconductors on plastic for EP. Additionally, the patterning definition techniques of inkjet printing and conventional photolithography, with solution-processed organic semiconductors on plastic with EP, are being compared. Finally, a-Si transistor fabrication on thin layers of polyimide spincoated on glass (and later released) is being investigated for OLED and EP displays.
The goal is to show a regular series of display demonstrators beginning from the last quarter of 2005 out to 2007.
For more information, a list of the partners and their roles, and recent results of the project, please download a copy of the FlexiDis newsletter, at www.flexidis-project.org (Publications and Press).
Furthermore, the FlexiDis consortium organizes a 1 1/2 day workshop on flexible displays.

Training Workshop on flexible displays 1st circular

The workshop will be held on February 23-24th, 2006 at the Institute for Display Technology of the University of Stuttgart, Germany. It will comprise a series of invited lectures covering the topics listed below. The workshop will begin at 2pm on the Feb. 23, and will close at 4pm on Feb. 24, and will include a workshop dinner in the evening of first day. A second circular with more detailed program information and organizational details will be circulated in due course. For further information contact Dr. Jochen Brill, University of Stuttgart (jochen.brill@lfb.uni-stuttgart.de) or Prof. Henning Sirringhaus, University of Cambridge (hs220@phy.cam.ac.uk).

Program topics: Historic technology overview, Materials for flexible plastic substrates, Organic TFT manufacturing on flexible substrates, Device physics and reliability of solution-processed organic TFTs, Inorganic TFT manufacturing on flexible substrates, Inorganic TFT materials & device physics (a-Si/mc-Si/poly-Si), Distortion measurement & correction, Roll-to-roll manufacturing, Flexible Connection, Display reliability issues related to mechanical properties, Encapsulation/OLED integration & reliability , Display effects for flexible displays, Display integration & reliability requirements, Market applications

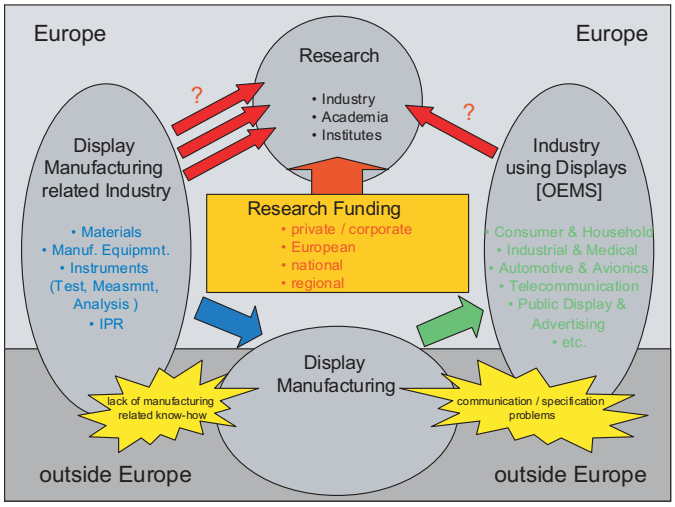
Eliav Haskal

ADRIA: the advanced displays research integration action

Solving the European "advanced displays competence" puzzle

Europe is a global driver in advanced displays research and innovation through a strong supply industry covering materials, machinery and instrumentation for the manufacturing of advanced electronic displays as well as basic intellectual property. At the same time Europe is a large and demanding market for information and communication technology (ICT) products using advanced displays as key components. Manufacturing of these displays is taking place in Asian coun-

tries, far from the location of the supply base of the above listed essential ingredients for production of advanced display devices.
Research in this wide field of displays related technologies, on the other hand, as carried out by universities, industry and specialized research organisations is rather scattered across Europe these days, lacking integration and harmonisation, and thus leaving room for improvements.



Schematic diagram of interactions in the display field

Consequences of scattered research activities may be: double research, overlapping of activities, non-matching objectives and timelines, and thus wasted resources.
The distance between European manufacturers and their display producing customers in Asia bears the risk of insufficient return of specific manufacturing related know-how. On the other hand, European industrial users of advanced displays may experience communication problems in the process of specifying details of product performance features or when developing and implementing new features.
It is thus of vital importance for the European displays industry and the European economy in general that these dispersed competences and knowledge resources are located, identified, harmonised and made accessible in an easy way for the promotion of innovative forces that form the basis for maintaining and even consolidating and improving the current state of European excellence in the advanced displays field.
In order to compensate for the distance between the industry that is producing large amounts of advanced electronic displays and the European "displays think-tank" and pool of related expertise, the isolated activities in European advanced displays research must be identified, coordinated, harmonised and focused to ensure optimum results within the limits of given resources and funding.
Some organisations on regional, national and European level provide consulting in the field of research cooperation and funding, and also the funding bodies themselves offer certain assistance in searching suitable partners for extended research projects, but there is no unbiased single institution that is collecting the bits and pieces of European displays related research (including human physiology, ergonomics, psychology and social aspects of electronic visual displays besides the scientific and technical ones) and puts them together to obtain a consistent and meaningful "larger image" of the existing European competences.

It is one of the main tasks of the ADRIA (advanced displays research integration action) project to collect the scattered pieces of European displays research activities in a most comprehensive sense, to process them and to present the results in an easily accessible way in a specially devised internet database. The organisation of this database , the keywords and descriptors are specifically selected to reflect the situation and the structure of the different fields of European displays expertise.
Additionally, the capabilities of the domestic supply industries are determined and the needs and requirement of the local original equipment manufacturers (OEMs) are investigated.
ADRIA's European advanced displays competence database is designed for the community, but it also is depending on the contributions and entries of the community, so do not hesitate and enter the research activities of your organisation and/or its displays related products and services as soon as possible.

ADRIA means "we are you", the quality of the database will only be as good as your inputs are numerous, qualified and complete !

The benefits of contributing to adria's European competence map

The basic principle of the adria competence database is that many parties provide small contributions that together make up the big picture ! So please spread the word in your professional neighbourhood and ask your collegues to also provide their contributions. If every single contributor can convince two additional parties to provide their entries, the project should get rolling !
When a certain critical mass of entries is reached in the database, the following benefits will be available to the European displays community.
Benefits for researchers in the field of advanced displays:

- you find state-of-the-art information about a wide range of research activities and results,
- you can better identify basic knowledge and technology gaps that are worth being bridged, thus promoting innovation and advancement,

- you can avoid research-dublettes and instead start your project one level higher,
- you can identify research partners in fields that are complementary to your activities,
- your activities and results become visible and can be located conve niently, and
- you find highly specialised devices and instruments to support your research.

Benefits for the displays related industry:

- research results that may be needed or helpful for internal product and process developments can be searched and located,
- well prepared research partners in academia can easiliy be identified, contacted and contracted,
- highly-specialised devices and instruments can be advertised to the community,
- find displays for special applications and components for highly-spe cialised display-systems that cannot be found in conventional product catalogues,
- find business opportunities not only directly in the display manufactur ing supplies industry but also in the area of adding value to initially commercial display products by modifying and refining them to highly-specialised high-performance display-systems as required for several industry branches in Europe (e.g. medical and graphics industries). This business field is of interest especially for flexible small and medium-size companies,
- identify knowledge and technology gaps that are worth being exploited commercially.

Benefits for investors:

- locate white-spots on the map of the advanced displays value-chains which may be worth exploring,
- find companies in the advanced displays field that promise good return on your investments.

Benefits for the European Commission:

- The European advanced displays competence map can provide a basis for identification of knowledge and technology gaps that have to be bridged by additional research projects which should be fostered and promoted by adequate focusing of the funding strategies of the European Commission and other funding bodies.
- The European advanced displays data-pool makes valuable information easily accessible and thus better suited for industrial exploitation. This will help to increase the actual value of each Euro spent by regional, national and European fundig bodies for research and development in the field of advanced displays.

How to register

You can get to the registration either by accessing the url directly,
http://www.adria-network.org/forum/register.php , or via the ADRIA website by pushing the button **[Register]** in the members section. The entry of data at the site is self-explanatory. Clearly, a high quality European advanced displays data-pool makes valuable information easily accessible, which is of great value for all European display professionals. So please contribute.

Michael Becker, adria secretariat

Europe Region Members Receive SID Awards

This year the SID gave 16 awards to individuals from a record nine different countries, which demonstrates the international character of SID. The Europe Region made a strong showing with four awards, which includes two of the three major prizes given by SID this year.

The Jan Rajchman Prize is given for an outstanding scientific or technical achievement in, or contribution to, research on flat panel displays and it carries a stipend of US $2000. This year the Jan Rajchman Prize was awarded to Prof. Donal Bradley, Dr. Jeremy Henley Burroughes and Prof. Richard Friend: "For their discovery and contributions to the understanding and development of light emitting polymers for display applications." These three invented the polymer Organic Light Emitting Diodes (OLEDs) in 1989 while working at the Cavendish Laboratory of Cambridge University. OLEDs are currently the most exciting new flat-panel display technology. Polymer OLEDs promise the advantage of lower cost manufacturing through patterning methods such as ink-jet-printing. The alternative OLED technology uses small organic molecules which are difficult to pattern even with common photolithography.

The Johann Gutenberg Prize is awarded for an outstanding technical achievement in, or contribution to, printer technology and it carries a stipend of US$2000. The Johann Gutenberg Prize is sponsored by both the Society for Information Display and the Society for Imaging Science and Technology. Dr. Josef Schneider received the 2005 Gutenbarg Prize: "For his numerous innovative contributions to concept development and fundamental inventions critical to the realization of computer-to-press systems for conventional and electronic printing processes." He is with MAN Roland Druckmaschinen AG, Augsburg Germany. Dr. Schneider invented and developed the DICOweb, a computer-to-press offset printing system. This system uses a computer-controlled IR laser to transfer imaging material from a thin tape ribbon onto a rotating steel drum internal to the printer. The drum with the pattern can then be used in an offset printing process to rapidly print up to 30,000 copies. This has the advantage of eliminating the normal pattern generator and plate making process used in conventional offset printing which greatly speeds up the production time.

Special Recognition Awards are given to members of the technical and scientific community, not necessarily SID members,

for distinguished and valued contributions to the information display field.

Dr. Thierry Leroux received a SID Special Recognition Award: "For outstanding entrepreneurial and technical achievement by founding and leading a company that manufactures innovative measurement instruments for the display industry." He is with ELDIM, Saint Clair France. Dr. Leroux founded ELDIM in 1992 and developed a very innovative line of products used for characterizing displays. The first major product was the EZContrast Fourier transform photometer which quickly and accurately measures the luminance of a display at all viewing angles. This photometer has facilitated the improvement of LCD characteristics in laboratories and manufacturing plants throughout the world.

Dr. Gerrit Oversluizen received a SID Special Recognition Award: "For developing a plasma display with simultaneous high luminous efficiency and high luminance." He is with Philips Research Laboratories in Eindhoven. The current major R & D problem for plasma displays is increasing the luminous efficiency. Dr. Oversluizen and a team at Philips achieved a record breaking prototype PDP exhibiting 5 lm/W at 5000 cd/m2. This compares favorably with current best commercial PDP products which achieve only 1.8 lm/W at 1000 cd/m2.

Larry F. Weber

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SOCIETY FOR INFORMATION DISPLAY

Coming Events:

Training Workshop on flexible displays

23-24 February 2006 at the University of Stuttgart

For more information see the FlexiDis news contribution in this newsletter.

SID MEC Spring'06 Meeting

9-10 March 2006, at the High Tech Campus in Eindhoven

Special Topics: Display Signal Processing,

3D Displays, Flexible Displays and Electronic-Paper.

Visit the website for latest information: access via http//www.extra.research.philips.com/sid or http//www.sid.org

SID-ME Chapter committee

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SID payment.

The SID annual membership fee amounts US$ 75. Please note that the membership is now a rolling membership, which means that it runs 12 months from the month in which the payment was made. For more information see the SID web-site www.sid.org.
We encourage our members to pay directly to SID-HQ in the USA, but if they want to pay to the ME-Chapter directly the annual fee should be EUR 90 **with all bank fees covered by the member !**
In case of direct payment to the SID-ME Chapter the payment in EURO should be done to

Account no.:	206 020 1104
at:	Berliner Sparkasse, Berlin,Germany
Bank code:	BLZ 100 500 00
Account name:	Frank Rochow, SID-ME

Please indicated your name on the remittance papers.

The Newsletter.

If you want to place an article in the Newsletter, which is interesting for the European display society, please send it to:
G. Oversluizen, fax: +31 40 274 4335,
E-mail: gerrit.oversluizen@philips.com

SID-ME Chapter Student Award

Call for SID-ME Chapter Student Award

The SID-ME Chapter Student Award is given for an outstanding scientific or technical achievement in, or contribution to, research on information display. The applicant is a student at a university/institute in the SID-ME region. The award amounts to 1500 Euro, with the obligation to present the contribution at the SID-MEC meeting where the award is presented. The conference fee is waived. The applicant must be a member of SID. For information on student membership, see below. The application deadline is January 1, 2006.

Application for SID-ME Chapter Student Award

Name: _____

SID Membership No.: _____

Institute/University: _____

Address: _____

Title of contribution: _____

Abstract (100-150 words): _____

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References (SID-ME member): _____

The application should be submitted to the award committee consisting of:
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SID Student Membership:

At http://www.sid.org you find information on SID student membership. Note the favourable offer of $5.00 per year for student members.