



Photonics & Organic Electronics Newsletter

July 2010

European Commission
Information Society and Media



<http://cordis.europa.eu/photonics>

http://cordis.europa.eu/fp7/ict/organic-elec-visual-display/home_en.html

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About 200 M€ for Photonics and Organic Electronics Research in the new ICT Work-Programme for 2011-2012

The ICT 2011-2012 work-programme has now been approved by the ICT Committee. It contains three dedicated objectives for photonics and organic and large area electronics (OLAE), of which two are part of the ICT Challenge 3 and one is included in the ICT part of the "Factories of the Future" (FoF) Public-Private Partnership (PPP) initiative. Photonics is also included as a sub-topic in another objective of the FoF PPP.

The total budget for photonics and OLAE in these objectives is close to 200 M€:

- **Objective 3.5 Core and disruptive photonic technologies** (117 M€), covering
 - a) Core photonic technologies;
 - b) Disruptive photonic technologies;
 - c) an ERANET-Plus action;
 - d) a Pre-Commercial Procurement action;
 - e) Coordination and Support actions.
- **Objective 3.6 Flexible, Organic and large Area Electronics and Photonics ("OLAE")** (50 M€), covering
 - a) OLAE technology and components;
 - b) OLAE systems and applications;
 - c) an ERANET-Plus action;
 - d) Coordination and Support actions
- **Objective 7.1 Smart factories: energy-aware, agile manufacturing and customisation**, as one of four subtopics (estimated ≈10 M€ of 40 M€) covering *Lasers and laser systems for manufacturing and materials processing*
- **Objective 7.2 Manufacturing solutions for new ICT products** (in particular OLAE; 20 M€)



The **tentative** call planning is as follows:

Call no.	Call date	Deadline	Content
FP7-ICT Call 7	Sep. 2010	Jan. 2011	Objective 3.5 (Parts b, e) Objective 3.6
FP7-ICT Call 8	July 2011	Jan. 2012	Objective 3.5 (Parts a, c, d)
FP7-2012-NMP-ICT-FoF	July 2011	Dec. 2011	Objectives 7.1 and 7.2

The extract of the work-programme with all the details for the photonics related calls can be downloaded from: http://cordis.europa.eu/fp7/ict/photonics/docs/wp2011-2012-photonics-olae-fofppp_en.pdf

16 new R&D projects are launched following ICT Call 5

Following the evaluations of the ICT Call 5 and the ICT part of the "Factories of the Future" cross-thematic NMP-ICT call of 2009, 16 new Photonics projects have been or are about to be launched for a total amount of 53 M€ EU funding. More precisely:

– Following ICT Call 5 (closed in October 2009), 3 Integrating Projects (IP), 9 STREPs and 3 coordination and support actions (CSAs) were retained for funding. Out of those 1 IP (MODE-GAP) and 5 STREPs (BIANCHO, C-3PO, GALACTICO, MIRTHE and POLYSYS) cover the communications area; the area of lighting and light sources is represented by the

		IP	STREP	CSA
Communications	42% of funding	MODEGAP	GALACTICO	POLYSYS
		BIANCHO	C-3PO	MIRTHE
Lighting	13%		SSL4EU	
III-V components	17%		PARADIGM	
Bio-photonics	13%		RAPID	SPADNET
Imaging	5%		MISPIA	
High Power lasers	5%		IMPROV	
SME and Researcher support				NEXPRESSO
Education and training				EXPEKT
International cooperation				ACTMOST
PPP FoF – Smart Factories			QCOALA	(laser applications)

IP project SSL4EU on LED-based Solid State Lighting; 2 STREPs (RAPID and SPADNET) address biophotonic applications; cost-effective high-performance imaging solutions for safety and security is covered by the STREP MISPIA; and highly integrated components for high average and high peak power lasers, by the STREP IMPROV. In addition, IPs for cost-effective versatile foundry processes for photonic components based on III-V semiconductors were called for and this area is represented by project PARADIGM. As for the 3 CSA actions that were retained, SME and researchers support through access to photonics technologies is going to be covered by projects ACTMOST and NEXPRESSO, while on the Education and Training part project EXPEKT has been retained.

– Finally, following the ICT Call on "Factories of the Future" (closed in November 2009), the STREP project QCOALA on laser manufacturing was retained for funding.

Full details of the projects will be soon on the Photonics web site – the projects part: http://cordis.europa.eu/fp7/ict/photonics/projects_en.html

Photonics and Organic Electronics in the Digital Agenda for Europe

On May 19th, the Digital Agenda for Europe (DAE) was published. This is the flagship initiative that Commission's Vice President Neelie Kroes is promoting as part of the EU2020 strategy. DAE defines the key enabling role that ICTs will have to play if Europe wants to succeed in its ambitions for 2020. Within DAE topics, photonics and organic electronics will feature strongly, as these are technologies which can provide components for new and exciting applications and products in

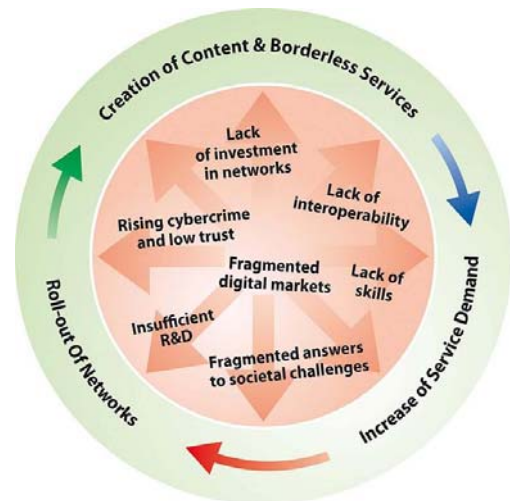
ultra-fast broadband networks (photonic components for core and access networks), health (biophotonics), and the low-carbon economy (such as solar cells, sensors, highly efficient lighting and displays, and other greener low-energy products and components).

Two specific actions on lighting were included as part of the Digital Agenda:

- In 2011 the Commission will publish a **Green Paper on Solid State Lighting (SSL)** to explore the barriers and to put forward policy suggestions; it will in parallel support demonstration projects using the CIP (see dedicated article in this Newsletter issue).
- By 2012 Member States should include **specifications for total lifetime costs** (rather than initial purchase costs) **for all public procurement of lighting installations.**

The next steps in this process are meetings and dialogue with key stakeholders such as the ELC, CELMA, and Photonics21. A broad consultation meeting is planned for autumn 2010. For more information see:

http://ec.europa.eu/information_society/digital-agenda/index_en.htm.



Photonics as a Key Enabling Technology



Following a Communication of the Commission adopted in September 2009 on "[Preparing for our future: Developing a common strategy for key enabling technologies in the EU](#)", **photonics was recognised as one of the five EU's key enabling technologies (KETs)**, the other four being: advanced materials, nano- and micro-electronics, biotechnology, and nanotechnology.

As an immediate follow-up to the Communication, the European Commission announced the establishment of the High-Level expert group (HLG) on KETs. Photonics21 is represented in the HLG.

The HLG is tasked to develop an independent report, which shall provide policy recommendations for a common European strategy that would allow the enhanced industrial deployment of KETs in the EU. The inaugural meeting of the HLG will take place on 13 July 2010 in Brussels, in the presence of three EU Commissioners responsible for industrial policy (Vice-Presidents Tajani and Kroes and Commissioner Geoghegan-Quinn). The mandate of the HLG has been given for one year. Based on this work, the Commission will report back to the Council and the European Parliament in 2011. We will keep you fully informed of the findings of the HLG through this Newsletter and our Unit's web site.

Photonics innovation clusters and national technology platforms

The photonics unit has recently published a report entitled 'An overview of photonics innovation clusters and national technology platforms in Europe'.

Photonics and optics innovation clusters and national technology platforms have been developing in Europe over the last decade. This report is a working document about their present status of development, R&D and training activities and their

involvement in the regional, national and/or European innovation policy. Issues related to future development potential and opportunities for further growth of photonics clusters and national technology platforms are also addressed. The report is available on:

<http://cordis.europa.eu/fp7/ict/photonics/docs/eu-report-on-photonics-innovation-clusters-june2010.pdf>.

Workshop CIP/Lighting pilots: results and next steps

The Photonics Unit organised a workshop on April 8th, 2010 with stakeholders from the Solid State Lighting (SSL) industry and interested end-users. The aim was to discuss issues related to a potential call for large scale pilot actions in SSL which could be funded under the Competitiveness and Innovation (CIP) Framework Programme. The plan is for these pilot actions to boost market acceptance of SSL by focusing on the various barriers and demonstrate SSL's economic viability. The involvement of all stakeholders in the value chain will be instrumental in creating the momentum needed to reach the ambitious EU targets in energy efficiency set for 2020 and beyond.

The large scale demonstration actions should aim specifically at:

- testing of intelligent SSL solutions under real life conditions;
- proving SSL's economic benefit and return on investment;
- proving SSL's ecological benefits contributing to the achievement of the Digital Agenda and Europe's 2020 goals.

A report summarising the main points discussed and conclusions reached in the workshop is available on: http://cordis.europa.eu/fp7/ict/photonics/docs/report-solid-state-lighting-workshop-8april-2010_en.pdf. All presentations and background documents and the position paper of the Photonics21 platform are available for members only on the WG4 page of the Photonics21 website: <http://www.photonics21.org/membership.php>.

The resulting Call for proposals under the CIP programme should open around January and close in June 2011, and the projects retained for funding should start around the end of 2011.

Opportunities for access to Venture Capital

A new initiative is delivered by 3 EU funded projects with the aim of improving access to finance for innovating SMEs across Europe. The initiative will be organising 3 key events over the next 2 years. The first one is organised for 27-28 September at the ICT2010 conference in the SME forum area within the exhibition hall. For more details, please see <http://www.ict-finance-marketplace.eu>. This is a unique opportunity for all those photonics and organic electronics stakeholders who are looking for new VC opportunities.

Forthcoming Events

ICT2010 conference: come and see the latest developments in photonics and organic electronics



At the upcoming ICT2010 event in Brussels (27-29 September 2010) photonics and organic and large-area electronics will be highlighted in a number of conference and networking sessions as well as via exhibits.

On 28/09 (14.00-15.30), the parallel session "Components and systems for energy efficiency" will address the role of advanced photonics-based components and systems for improving energy efficiency in lighting, PV and ICT infrastructures. In addition, two

networking sessions will be organised with the aim of gathering the photonics and OLAE communities around dedicated topics, one addressing the prospects of commercialisation of organic electronics from lab to market (related to the QUADRIGA set of projects) and a second one on the exchange of advanced photonics technology components for prototyping (related to the NEXPRESSO project). The exact timetable is not yet known.

On the exhibition floor the following projects and initiatives will be present:

A. R&D stands:

- Photonics4Life (Photonics): Bio-particle explorer - reliable germ detection without loss of time;
- Solid State Lighting (from OLED100 and other LED and OLED projects);
- ICU (Photonics): Infrared imaging components for use in automotive safety applications (together with project FNIR);
- QUADRIGA (OLAE): OLAE, the new electronics with a range of projects and devices;
- HYPOLED (OLAE): High-performance OLED-microdisplays for mobile multimedia HMD and projection applications;
- FACESS (OLAE): Flexible autonomous cost-efficient energy source and storage.

B. Infostands:

- PHORCE21: Photonics21;
- Factories of the future (FOF) PPP.

C. SME Village:

The SME Village will feature a number of photonics companies or companies involved in photonics-related projects: Novaled, Intune Networks, VI Systems (VISIT project) and Fairfield Group (InTopSens project).

D. In the Belgian pavilion:

- VUB: Photonics - key enabler in Belgium and Europe for ICT;
- ULB: Developing the next-generation of organic materials for electronics and photonics.

Do not miss the opportunity to come and see all the latest results and speak to all the key players in the area. For more information and registration, please go on: http://ec.europa.eu/information_society/events/ict/2010/.

Nanophotonics Concertation meeting

The Nanophotonics Europe Association is organising a Concertation Meeting on nanophotonics in the October-November 2010 time frame.



The event will include speeches from European Commission representatives, running FP7 projects and other nanophotonics stakeholders, providing also a dynamic interaction and discussion environment for the preparation of new collaborative projects. Full details on the event will be posted in the Nanophotonics Europe Association's website: <http://www.nanophotonicseurope.org/>.

The contact person is Gonçal Badenes, e-mail: contact@NanophotonicsEurope.org.

Past Events

2010 OLAE Concertation event brings together all FP7 OLAE projects

The 2010 Organic and Large Area Electronics (OLAE) concertation meeting was held in Brussels on 14-15 June. It was aiming at the further consolidation of the OLAE

community in Europe through the exchange of views between the project teams and at providing new opportunities for future research collaboration.

More than 60 attendees, coming from both industry and academia, participated and presented their latest research in organic electronics. The event brought together 34 FP7 OLAE projects dealing with a broad spectrum of advanced research on organic electronics and applications. The two-day meeting agenda grouped several main research and support areas for discussion: lighting & displays; organic photovoltaic; organic electronics, materials & sensors; manufacturing technologies, integration & devices; as well as the Quadriga projects coordinating and supporting OLAE research activities.

In his welcome speech, DG INFSO G Director Thierry Van der Pyl emphasised the value of OLAE as a key technology for Europe's future competitiveness, sustainable growth and employment. For this reason, OLAE is one of the key technologies to achieve the innovation objectives in the European Digital Agenda (see dedicated article in this Newsletter issue).

At the meeting, the ICT Work programme for 2011-2012 was also presented and the new funding opportunities for the OLAE community explained: Under Objective 3.6 an amount of 40M€ is foreseen for research projects on technology and applications, 6 M€ for ERANET-Plus actions and 4 M€ for Coordination and Support Actions. An additional amount of 20M€ will be spent on OLAE manufacturing solutions under Objective 7.2 (FoF PPP). The call for proposals on Objective 3.6 will be open from 28.09.2010 to 18.01.2011; the call on Objective 7.2 (OLAE manufacturing solutions) is tentatively scheduled for July 2011. The meeting also served as a platform for the OLAE research community to exchange some views on the topics that a likely ERANET Plus proposal on OLAE could cover.

More details and presentations are available on:

http://cordis.europa.eu/fp7/ict/photonics/concertation140610_en.html.

Photonics Europe 2010

The Photonics Europe conference, Brussels, 12-16 April 2010, had an attendance of 2,150 which was again an increase over previous meetings.



The opening key-note speech was given by Giorgio Anania on behalf of Photonics21. The Photonics21 Student Innovation award was given to Sedat Nizamoglu and Natalie Vermeulen. An overview of some of the conference's highlights can be found on <http://spie.org/x23831.xml>.

LOPE-C 2010 event

LOPE-C is a flagship event for the European Organic Electronics (OE) community. This year the event was attended by around 850 delegates from all over the world. The event served as an excellent showcase of the latest scientific and technological advances of the OLAE community. The conference was opened with a speech by Dr Carl Buhr, Member of the Cabinet of Commissioner Kroes.



The exhibition was quite impressive: there were 89 Exhibitors participating from 13 different countries (mostly from Europe), with the presence of many established and new companies, competence centres and research centres covering the whole value chain: from new materials, to devices (in particular printed RFIDs, batteries, sensors, and oTFTs, but also OLED lighting systems over flexible substrates, OLED-based displays, OPVs) and to first simple smart systems integrating different functionalities, up to OE production equipment manufacturers (mostly for reel-to-reel printing processes). More details about LOPE-C 2010 can be found on:

<http://www.lope-c.com/en/conference>.

Project News



The objectives of the IST-FP6 project LANCER, <http://www.lancer.ensicaen.fr/>, which ended on 31/08/2009, were to realise high-performance, CMOS-compatible and cost-effective Er-doped planar optical amplifiers (EDWAs) and lasers for the next generation of optical networks:

photonic integrated circuits operating at 1.5 μm for optical data handling and transmission in local area networks through the deployment of fibre-to-the-home cheap solutions with Gbit/s bandwidth.

Outstanding scientific results and significant technical progress were achieved by the consortium. The achievements can be summarised by: (i) an electroluminescence with a power efficiency of $10^{-2}\%$ and more than 20% of Er ions inverted, (ii) the development of a transistor MOS emitter with built-in modulation (patented) (iii) the development of a longitudinal multimode pumping (patented), (iv), the development and realisation of a prototyped and packaged waveguide amplifier, powered by a low-cost optical pumping scheme (patented).



The IST-FP6 project HECTO has been concluded with successful field trials with fibre-optical communication at the record speed of 112Gbit/s. HECTO aimed to develop cost-efficient transmitters and receivers for high-performance and high-speed fibre-optical communication systems. To ensure that the produced modules would meet the demands of future markets, technology application assessment were performed and partners actively engaged with ongoing standardisation in IEEE and ITU-T.

The key benefit of the project is a method that cuts the number of transceivers for 100G network links of less than 40 kilometres by 75%. With HECTO, operators can provide short-haul 100GbE using only one transceiver on a single wavelength, rather than four transceivers at four separate wavelengths. The complexity of 100GbE transmission is therefore significantly reduced. At the same time, the increased capacity demands in the metro and access portions of the network are met. Operators can thus upgrade to 100GbE without major network investments. A second path to commercialisation which the partners will pursue is the application of the technology in measurement equipments.

Technically, the HECTO transmitters contain light-intensity modulators integrated with lasers, electronic driver amplifiers and multiplexers. The HECTO receivers have photodetectors integrated with electronic amplifiers, high-speed electronic circuits for electrical clock recovery and demultiplexing to lower speeds. All components were fully packaged.

For more information see: <http://www.hecto.eu/>



Scientists at VUB develop free educational kit for Europe's secondary schools. The Photonics Explorer team at the Vrije Universiteit Brussel develops an intra-curricular educational kit on light, optics and photonics that enriches physics classes with exciting hands-on experiments.

By engaging students actively in scientific experiments, the kit aims to stimulate their curiosity and interest in scientific research. The kit will be translated in various languages. From 2012 on it will be distributed free of charge to teachers at schools in Europe. For more information, see <http://www.photonicsexplorer.eu/>

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Project News (continued)



The integrating project HELIOS, which aims to advance and demonstrate the use of silicon/CMOS photonics, has delivered a course on this topic.

This course aims to introduce and to prepare to the silicon photonics technology. The principal target audience are students at the graduate/PhD student level, researchers and engineers who are willing to get introduced to the field. The course material is free and will be updated on a yearly basis. The length of the course is about 21 hours. It can be used in its totality or some extracts. The HELIOS course material is available for free download: <http://www.helios-project.eu/>.

Other News

New conference on the impact of Green Photonics

SPIE Europe has announced a new congress which will address photonics for clean energy generation, ecologically friendly manufacturing processes, energy-efficient lighting, pollution control, and environmental monitoring.

The congress "Eco-Photonics: energy, engineering, education and the environment", will be held from 28-31 March 2011 in Strasbourg and will cover the following areas:

- Photonics in Sustainable Energy Engineering
- The Role of Photonics in Sustainable Product Design
- The Role of Photonics in Sustainable Manufacturing Development and Processes
- Education for a Sustainable Engineering Workforce for a Green Future

The deadline for submitting a three page extended summary and a 250-word abstract for review is 4 October 2010. For more information, see: http://spie.org/x40080.xml?WT.mc_id=REGP11CW.

Happy birthday laser – 50 years young!

The May issue of Physics World was a special issue devoted to laser science and technology, and is available for free download <http://physicsworld.com/cws/download/may2010>. This special anniversary issue relives the race to build the first laser, reviews the latest research into ultrafast and ultra-high power lasers, and features six experts' predictions of where laser technology will go next. On physicsworld.com, there is also a series of video interviews with some leading lights in laser science.

Diary of Events

[EOS TOM: European Meeting on Visual and Physiological Optics](#) (EMVPO 2010), 22 - 24 August 2010 - Stockholm, Sweden.

[6th Plastic Electronics Conference & Exhibition](#), 19-21 October 2010 - Dresden, Germany.

[EOS Annual Meeting 2010](#) (EOSAM 2010) co-located with PRI-OPTO 2010, 26 - 29 October 2010, Paris, France.