

*** 3rd Press Release OLLA Project ***

For technical press

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**The OLLA project delivers its 2nd milestone:
Europe's most efficient OLED lighting tile demonstrated**

14 May 2007, Aachen, Germany

Two and a half years after its start, the European research project OLLA* presents its second milestone: a prototype white Organic Light-Emitting Diode (OLED) light source, with an efficacy of 25 lumen per watt and a lifetime of over 5.000 hours from an initial brightness of 1.000 cd/m².

**) 'OLLA' stands for high brightness Organic LEDs for ICT & next generation Lighting Applications*

"With this milestone, the OLLA project shows its progress in developing OLED lighting technology," said Peter Visser, project manager of OLLA. "OLEDs are not only a flat and thin, but they also bear the potential to be a very energy efficient light source. With this milestone we doubled the efficiency compared to an ordinary tungsten light bulb and expended the lifetime five times. In a few years time, we expect to be able to be as efficient as a compact fluorescent source. This gives OLED lighting a bright future!"



"These top-level results from the OLLA project show the real benefit of European-wide research cooperation projects," said EU Commissioner for Information Society and Media Mrs. Viviane Reding. "It proves that close cooperation between industry, academia and universities is effective. It contributes much to the development of an OLED lighting industry in Europe."

Goal of the OLLA project is to further develop OLED technology for lighting purposes. OLEDs are currently used for small display applications like MP3 players, but can also be used as a flat and efficient light source.

"This very efficient white OLED light tile was designed at Philips from a mixture of fluorescent and phosphorescent OLED materials within the NOVALED proprietary PIN structure. It contains several layers of specially designed materials from OLLA partners, and highlights the results of two years of excellent teamwork between the material and device partners within the project," Visser continues.

"The lifetime achievement of 5000 hours in combination with high efficiency is a very important step towards the introduction of OLED technology in lighting applications," said Karsten Diekmann from OSRAM Opto Semiconductors, partner in the project. He pointed out the capability of OLEDs for applications such as signage or LCD backlighting.

The project further evaluates several fabrication processes for OLED fabrication. Last December, the project showed Europe's largest OLED light tile at the IST event in Helsinki: an OLED lamp consisting of four 15x15cm² OLED tiles. *"These large OLED tiles are fabricated on our*

Additional project information is available on: www.olla-project.org

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evaporation tools in Dresden” Jörg Amelung of Fraunhofer-IPMS said *“This proves the possibility to fabricate large OLED tiles and in the next months we will transfer the new efficient OLED stack towards our tools, so that we also can demonstrate this record on large substrates.”* Besides evaporation deposition, the project also evaluates gravure printing of white polymer OLEDs at the Finnish partner VTT. Printing is seen as one of the options to lower production costs of OLEDs.

Although higher efficacy figures have been published, the OLLA project believes that the shown result is state-of-the-art. *“ One of the problems in comparing the results of the different research groups around the globe is that there are no standards for OLED measurements,” explains Dr Dietrich Bertram of Philips Lighting and technical coordinator of the OLLA project.” It makes an enormous difference when the measurement is done in an integrating sphere or when stacked-layers are used. Therefore the OLLA project just decided to develop a white-book on OLED lighting measurement, in order to support standardization of performance and measurement criteria.”*

The OLLA project, which has reached just over half its duration, has a final efficacy target for OLED lighting of 50 lumens per watt combined with a lifetime of 10.000 hours at 1.000 cd/m² initial brightness.

OLEDs are worldwide recognized as very a promising future lighting technology for professional and domestic applications. OLED materials are based on organic hydrocarbon complexes and do not make use of mercury, unlike gas discharge lamps. Together with inorganic LEDs, OLEDs have the potential for considerable energy savings in illumination/lighting applications.

ADDITIONAL INFORMATION FOR EDITORS:

Links related to this press release

- OLLA project website: <http://www.olla-project.org>
- Link towards original picture materials: <http://www.hitech-projects.com/euprojects/olla/downloads.html>
- The FP6- IST programme: <http://cordis.europa.eu/ist/>
- IST 2006 conference: http://ec.europa.eu/information_society/istevent/2006/index_en.htm

About the OLLA project:

OLLA is a joint research project dedicated to the development of white OLEDs for general lighting applications. Goal of the OLLA project is to demonstrate in 2008 long-life and highly efficient white OLED light with the following specifications: efficacy of 50 lm/W, lifetime of 10.000 hours from an initial brightness of 1.000 cd/m², with a tile size of minimum 15x15 cm².

The consortium consists of 24 entities in 8 European countries. OLLA is partially funded under the IST priority (Information Society Technologies) of the European Union's 6th Framework Programme (FP6).

About OLEDs

OLEDs are a novel and very attractive class of solid-state light sources, which are flat, thin, and very lightweight. OLEDs generate a diffuse, non-glaring illumination with high color rendering. Due to its freedom of design, OLED lighting technology offers many possibilities for new lighting applications. OLEDs could also be used in lighting systems with controllable color, allowing users to customize their light atmosphere. Furthermore, as a highly efficient light source, the technology has the potential of achieving substantial energy savings, without compromising color rendering or switching speed.

About the lighting measurements in this press release:

OLEDs were measured with standard outcoupling enhancement foils on top of the substrates. Lifetime predictions are done via accelerated lifetime tests on higher brightness levels.

OLLA highly recommends the OLED lighting community to publish OLED lighting measurement data on 1000 cd/m² brightness levels with corresponding efficiency and lifetime data in order to make research results comparable.

For more information, previous press releases,
high-resolution versions of the enclosed pictures please go to:
www.olla-project.org, section download

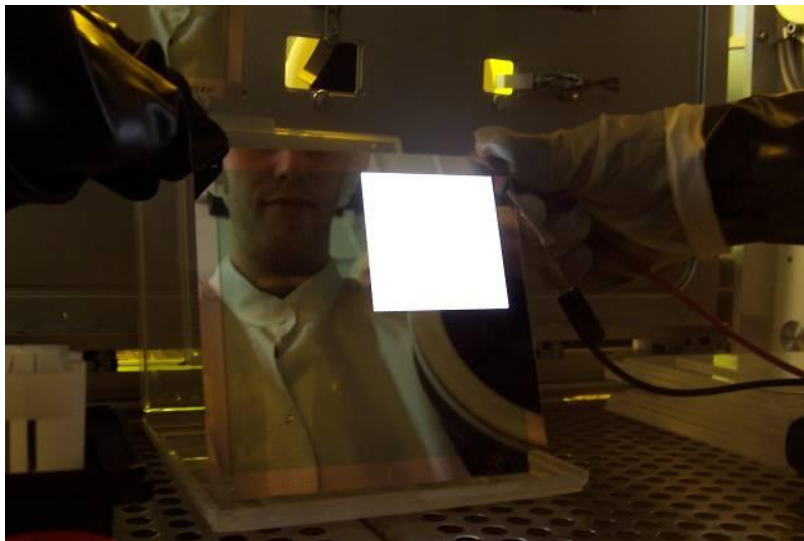
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Novel released pictures in conjunction to this text:



Caption: OLED is a revolutionary novel efficient lighting technology. The thin glass plate lighting tiles are based on organic materials and do not make use of mercury. Therefore OLEDs are (potentially) fully recyclable. (Picture source: the OLLA project / Philips Lighting)



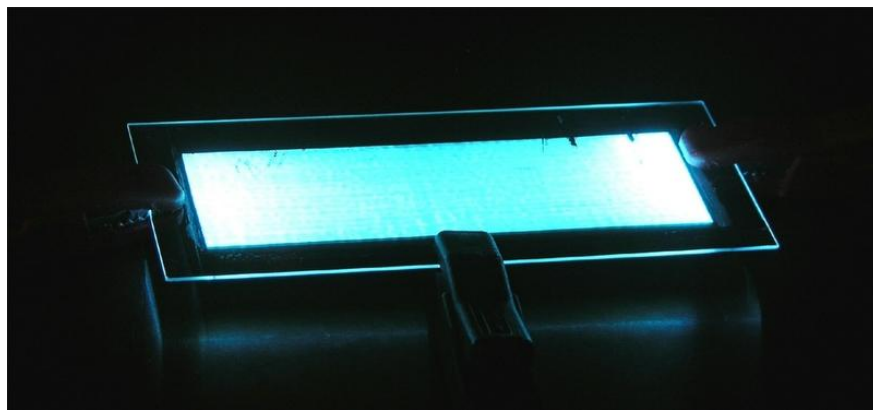
Caption: Initial tests of the OLLA demonstrator OLED tile in glove box under nitrogen atmosphere. This demonstrator is fabricated on the inline OMBD tool at Fraunhofer-IPMS in Dresden. (Picture source: Fraunhofer IPMS)

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Caption: Organic LEDs can be made in various colors (including warm and cold whites) with very high color rendering index (picture source: the OLLA project)



Caption: A gravure printed polymer OLED, developed by VTT (picture source: VTT TECHNICAL RESEARCH CENTRE OF FINLAND)

Note: High-resolution version images can be downloaded from: www.olla-project.org
Pictures may only be used in conjunction with this press release.

Additional project information is available on: www.olla-project.org

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Key data of the OLLA project:

- Project goal: demonstration of OLEDs technology for Lighting Applications
- Project website: www.olla-project.org
- Duration: 45 months, started on 1 October 2004.
- Project budget: €20 Million
- EU contribution: €12 Million funding
- EU contract number: IST-2002-004607.

The project has the following 24 consortium partners out of 8 EU countries:

Universities:

- Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland
- Katholieke Universiteit Leuven (KUL), Belgium
- Rijksuniversiteit Groningen (RUG), the Netherlands
- Institut für Angewandte Photophysik (IAPP), Technische Universität Dresden, Germany
- Universität Kassel, Germany
- Universiteit Ghent, Belgium

Research Institutes:

- Centre National de la Recherche Scientifique - Institut des Matériaux Jean Rouxel de Nantes (CNRS-IMN), France
- Centre National de la Recherche Scientifique - Laboratoire de Chimie de Coordination du CNR (CNRS-LCC), France
- Consiglio Nazionale delle Ricerche (CNR-ISOF), Italy
- Fraunhofer Institute for Photonic Microsystems (IPMS), Germany
- Institute of Physical Chemistry of the Polish Academy of Science, Poland
- Interuniversitair Micro-Electronica Centrum (IMEC), Belgium
- National Nanotechnology Lab (NNL), Lecce, Italy
- VTT Technical Research Centre, Finland

Industrial Partners:

- Aixtron AG, Aachen, Germany
- Merck KGaA, Frankfurt, Germany
- H.C. Starck & GmbH, Germany
- Novald AG, Dresden, Germany
- Osram Opto Semiconductors GmbH, Regensburg, Germany
- Philips Electronics Nederland BV, Eindhoven, the Netherlands
- Philips Lighting GmbH, Aachen, Germany
- Philips GmbH Forschungslaboratorien, Aachen, Germany
- Sensient Imaging Technologies GmbH, Wolfen, Germany
- Siemens AG, Erlangen, Germany

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