

PRESS RELEASE

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Novaled achieves break through in organic CMOS-type technology

The success of today's digital electronics is based on the CMOS technology. Novaled found a way to translate the classical inorganic CMOS-approach to the world of organic electronics.

The classical silicon CMOS technology is combining p-type and n-type silicon transistors. Silicon CMOS are currently used for any computing applications. Their costs are too high however to address broad fields of application for which a simple electronic with any cheap support like paper are requested.

The organic industry, besides display and lighting applications, is targeting this low cost electronic. Organic CMOS type transistors need to be developed. Currently, most of the developments are based on pentacene, an organic material which usually allows for p-type transistors only. Nevertheless, the use of Novaled's proprietary p- and n-dopants allows establishing p- and n-type field-effect transistors based on a single pentacene semiconductor layer. By use of thin layers of p- or n-type dopants on the source/drain contacts, the transistor becomes either purely p- or n-type which allows for high noise immunity and low static power consumption. The currently achieved mobilities are in the order $1E-2\text{cm}^2/\text{Vs}$ for both conductivity types.

"Novaled has already achieved world leadership positions in OLED with its Novaled PIN OLED™ technology for display and lighting applications" says Gildas Sorin, Novaled CEO. "The p- and n-dopant we have developed for these two applications prove to be groundbreaking for organic transistors as well. Novaled will further develop its capability in digital organic which will become a major market in the coming future".

Details of the use of Novaled's organic dopants for CMOS-type organic transistors have been introduced by Dr. Tobias Canzler, Novaled project leader Organic Electronics, at the August 2008 SPIE Optics & Photonics Conference.

About OLEDs

OLEDs (organic light-emitting diode) are semiconductors made of thin organic material layers of only a few nanometers thickness. They emit light in a diffuse way to form an area light source. In a fast growing display market OLEDs are key part of a revolution: the dream of paper-thin, highly efficient displays with brilliant colors and great flexibility in design is becoming reality. OLEDs represent the future of a vast array of completely new lighting applications. By combining color with shape, organic LEDs will create a new way of decorating and personalizing people's surroundings with light. At the same time OLEDs offer the potential to become even more efficient than energy-saving bulbs.

About Novaled

Novaled AG is a world leading company in the OLED field specialized in high efficiency long lifetime OLED structures and an expert in synthetic and analytical chemistry. The company offers complete solutions to the organic electronic markets, commercializing its Novaled PIN OLED™ technology along with its proprietary OLED materials.

Novaled has developed long term partnerships with major OLED players worldwide. Based on more than 380 patents granted or pending, Novaled has a strong IP position in OLED technology.

Main investors are Crédit Agricole Private Equity, TechnoStart, TechFund Capital Europe and CDC Innovation. For more details please visit www.novaled.com

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