

X T P L[®]



XTPL NEWSLETTER

FEBRUARY 2021



NEWS

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Installation of Delta Printing System in IGM laboratory

NEWS



XTPL implemented its Delta Printing System to the Institute for Large Area Microelectronics (Institut für Großflächige Mikroelektronik "IGM") of the University of Stuttgart, under the agreement signed in November 2020.

A delegated technology team installed, initialized and calibrated the device at the Institute in Stuttgart Clean Room laboratory. The XTPL team also trained the IGM employees. The knowledge acquired during the training allowed IGM employees to print their first conductive structures using the XTPL device. Thanks to the courtesy of the client, the Company's representatives could learn about the Institute's equipment and technological processes.

The Institute for Large Area Microelectronics (IGM) of the University of Stuttgart (Germany) led by Prof. Norbert Fruehauf is a research and education institute specialized in novel processes and materials among others for advanced flat panel display technology (FPD).

XTPL received a grant from Polish National Centre for Research and Development

On December 28, 2020 the Company signed a contract for a subsidy in the amount of €2.6 million from the Polish National Centre for Research and Development (Narodowe Centrum Badań i Rozwoju) for the project on development of innovative technology of precise deposition of conductive grids for next-generation OLED displays. The project was ranked among the Top 3 in the very competitive project call of close to 400 projects submitted for evaluation.

In the course of this project XTPL will develop innovative solutions for reducing the resistance of transparent cathodes of TE-OLED displays without reducing their aperture. While low resistance of transparent cathode is fundamental to TE-OLED display image quality, especially for large displays, most existing methods have a significant negative impact on the aperture, therefore, image brightness and quality. Not only

XTPL technology will alleviate both problems, but will also deliver a purely additive solution with increased flexibility and reduced environmental impact.

The solution to the problem proposed by XTPL is novel and awaited by the FPD industry. The project will strengthen its strategic developments within the Flat Panel Display industry, and will be completed by mid-2023.

innoLAE 2021 Conference

On February 22-25, XTPL participated in the [innoLAE 2021 Online Conference](#) - Innovations in Large-Area Electronics (podlinkować) - printed, flexible, hybrid, plastic, organic, bio-electronics.

The 7th edition of this annual conference highlighted the most innovative and exciting aspects of large-area electronics developments.

The conference programme call attention to the most innovative and exciting aspects of large-area electronics.

Large-Area Electronics (LAE) is a new way of making electronics, including printed, flexible, hybrid, plastic, organic and bio-electronics. It is enabled by new materials that can be processed at low-temperatures, permits the use of new manufacturing processes such as printing and digital fabrication and enables products with new form factors, new cost structures and the potential for customisation.

Dr. Aneta Wiatrowska, Technology Director at XTPL presented a talk on “High-resolution printing of micrometer-size conductive structures for LAE” in the “Manufacturing” session.

We are happy that the XTPL technology gained the attentions of the conference steering committee, which made it possible to share knowledge about our technology to a wide group of international experts





XTPL at the Display Week

Display Week is one of the world's most important events in the sector of modern displays. It is an opportunity to better understand the global display market, and a place to meet the leading companies and research institutions.

This year, due to the COVID-19 pandemic, the Display Week will be organized as a virtual event that will take place on May 17-21, 2021.

XTPL will present its technological solutions during the SID's Display Week Symposium, which brings together hundreds of speakers for both oral and poster presentations. The reviewing committee gave positive recommendation for XTPL's oral presentation during the session focused on micro-LED displays. The Company will present its most recent results demonstrating how the Ultra-Precise Deposition technology can be used for prototyping and fabrication of next-generation micro-LED and OLED displays. Moreover, during the accompanying exhibition, XTPL will demonstrate its Delta Printing System.

Soon we will provide information on how to visit our virtual booth at Display Week 2021. Stay tuned!



XTPL technology webinars

The pandemic has forced us to change many of our behaviors and habits. In order to avoid direct contacts with larger groups of people, many meetings were moved to the virtual world. Organizing and conducting virtual conferences is nothing new, but the Covid-19 pandemic has opened a new chapter in the history of video conferencing technology. Following this trend, the XTPL team decided to expand its activities to include technological webinars. Thanks to the flexible formula, adapted to different time zones, the Company was able to reach a wide group of participants from all over the world.

So far, XTPL has held four webinars on ultra-precise deposition technology (UPD) for rapid prototyping of microelectronic devices. The CEO of XTPL, Filip Granek, PhD, presented the possibilities inherent in the use of the UPD technology for printing electronic connections on 3D substrates, and a laboratory printer for faster and cheaper prototyping of electronic systems.

The events conducted by XTPL were popular among deep-tech

specialists from around the world. The Company has established new significant contacts and is holding talks with interested entities about potential cooperation.

Despite many challenges of our new reality, XTPL is trying to orient its activities to the new, remote formula. In the near future, the Company is planning further webinars on the XTPL technology. We encourage you to follow our social media channels to stay up-to-speed on the events organized by XTPL.



Expansion of the nanoinks portfolio

XTPL is constantly expanding the portfolio of its proprietary products. Working on the breakthrough technology of ultra-precise printing of nanomaterials, the Company has developed highly concentrated inks based on silver nanoparticles.

The latest product added to the offer is the conductive IJ36 ink for inkjet printing. The nanoink produced by XTPL has unique properties and technical parameters. It is characterized by high electrical conductivity and excellent print stability. This product ensures long working time without clogging nozzles or changing printing parameters, with the use of even the smallest 1 pL cartridges available for the Dimatix DMP-2850 printer. In addition, the ink is compatible with various substrates, including PET, PEN, PEI and glass.

Bearing in mind the needs of customers, the Company has created a catalog of nanoinks to give an easy and clear overview of the offer. You can download the catalog by clicking on the link under the photo.

Silver conductive patterns printed on Kapton foil using inkjet method and XTPL IJ36 Nanoink



[NANOINKS PORTFOLIO](#)

New patent applications

Building a comprehensive patent portfolio is a priority for XTPL. To this date, the Company submitted 20 patent applications in the areas of the printing process, software development, specific industrial applications, and inks.

The last category of patent submissions reflects the Company's expertise in the manufacturing and optimization of inks dedicated to various technologies for printed electronics. The 19th patent application in XTPL portfolio protects the formulation of our silver-based conductive ink (IJ36). The ink is intended for inkjet printers, and its key features include: print stability, even with the smallest 1 pL cartridges available for the Dimatix DMP-2850 printer; printing structures having over 40% of electrical conductivity of silver; and the ink's compatibility with various substrates, including PET, PEN, PEI, and glass. Last month, the Company submitted the 20th patent application to protect a method of printing metallic microdots with parabolic shape and high height-to-width aspect ratio. Such microdots can be used, among other applications, to make precise electrical connections in semiconductor devices. Compared to other printing technologies, the key advantages of this method include the shape and size of microdots, i.e. a parabolic cross-section and a diameter of a few micrometers. In addition, the XTPL method ensures the ability to precisely control the pitch between microdots. Both patent applications were filed with the United States Patent and Trademark Office.



Method of printing metallic microdots with parabolic shape and high height-to-width aspect ratio



The formulation of silver-based conductive ink (IJ36) for inkjet printers



Lux Research ranking

Lux Research included XTPL into the list of the top young, innovative technology companies disrupting the chemicals and materials industry in 2020 in the category “materials and digital transformation”.

The chemicals and materials industry is going to see massive disruption in the next 20 years, and experts at Lux Research have identified startups and technologies leading the evolution of the industry. Lux’s experts have evaluated companies on their technology, business strategy, leadership, and market positioning and categorize the companies based on alignment with four key trends: The Chemicals & Materials Company of 2040, The Sustainability Imperative, Materials and Digital Transformation, Consumer Transformation.

Lux Research is a leading provider of tech-enabled research and advisory solutions. The Company provides independent analyses rooted in science and engineering.

Lux Research TOP CHEMICALS & MATERIALS STARTUPS OF 2020

1 THE MATERIALS AND CHEMICALS CO...	2 THE SUSTAINABILITY IMPERATIVE	3 MATERIALS AND DIGITAL TRANSFORMATION	4 CONSUMER TRANSFORMATION

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-0.59%

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QUARTERLY REPORT
For Q3 2020

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12 APR
MON

VIRTUAL ZÜRS
A conference organized by Raiffeisen Bank International, during which XTPL representatives will hold a series of meetings with institutional investors.

27 APR
TUE

PUBLICATION OF THE ANNUAL REPORT
for 2020

INVESTOR'S CALENDAR

STAY IN TOUCH

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FOR MORE INFORMATION GO TO
OUR INVESTOR RELATIONS SITE

