

Press release in English

Crocus Labs and Łukasiewicz – Institute of Microelectronics and Photonics Partner on Photonhub-Funded Project to Revolutionize Greenhouse Lighting with High-Efficiency, Natural Light LEDs

Crocus Labs GmbH, a leader in innovative lighting solutions, and the Łukasiewicz Research Network, a renowned Polish research institution, today announced a collaborative project funded by the Photonhub initiative. This partnership aims to significantly enhance Crocus Labs' proprietary LED chip technology and revolutionize greenhouse lighting.

Crocus Labs boasts extensive experience in semiconductor technologies, power electronics, and sensor systems. By leveraging this expertise, they tackle the limitations of outdated lighting, offering superior quality and energy efficiency. Their dynamic lighting system, SiriusX.3, is already optimizing energy use and fostering growth in Controlled Environment Agriculture (CEA) facilities.

Photonhub: A Catalyst for Innovation

Photonhub, a collaborative initiative, is providing crucial funding for this project. PhotonHub is a unique European full-service one-stop-shop Photonics Innovation Hub. It provides European photonics and non-photonics companies, especially SMEs and mid-caps, with open access and guided orientation to a broad range of services and capabilities.

Łukasiewicz – IMiF Expertise Strengthens the Initiative

Institute of Microelectronics and Photonics (part of the Łukasiewicz Research Network) brings its exceptional research capabilities to the table. Their collaboration with Crocus Labs will focus on optimizing the proprietary LED chip. Łukasiewicz – IMiF will be working on development of new front-end-processes. The fabrication of this GaN-based light emitting diode chips will be entirely produced and characterized in the Łukasiewicz – IMiF laboratories. This combined effort promises to unlock the full potential of Photonhub technology.

Pushing the Boundaries of Greenhouse Lighting

This project aims to develop a next-generation LED chip that surpasses the state of the art in greenhouse lighting. The focus lies on creating new materials and fabrication processes to achieve LEDs that are:

- **More Efficient:** Consuming less energy while delivering the same or even better light output for plants.
- **Durable:** Withstanding the demanding conditions of greenhouse environments for extended periods.
- **Versatile:** Emitting a wider range of colors to optimize light quality for various crops and growth stages.

This collaborative effort seeks to develop a new type of LED lighting system that is superior to existing solutions in all these aspects. The ultimate goal is to create a system that:

- **Improves Light Quality:** Leading to increased yield and enhanced quality of greenhouse-grown crops.
- **Minimizes Energy Usage:** Promoting sustainable and cost-effective agricultural practices.

By the end of the project, the team aims to have developed a working prototype of a high-efficiency LED lighting system for greenhouse agriculture. This prototype will then be ready for rigorous testing in real-world greenhouse environments, paving the way for a future of greener and more productive agriculture.

"We are excited about the collaboration with Crocus Lab and are very happy to apply our technologies and our know-how in "real life", bringing Crocus Labs innovative solution close to the market" - Anna Szerling, Group Leader and Director of Center of Nanotechnology at Łukasiewicz – Institute of Microelectronics and Photonics.

"The deep knowledge and expertise that the Łukasiewicz team brings to this project are invaluable. Their insights are accelerating our progress and pushing us closer to our goal of revolutionizing greenhouse lighting. This collaboration is not just about creating a new product, but about shaping the future of sustainable agriculture." - Dr. Prash Makaram, CEO and Founder of Crocus Labs GmbH

About Crocus Labs

Crocus Labs GmbH, headquartered in Berlin-Brandenburg, Germany, is a pioneer in innovative lighting solutions. Backed by the European Union EIC accelerator program and leading German VCs and leveraging extensive experience in semiconductor technologies, power electronics, and sensor systems, Crocus Labs addresses the shortcomings of outdated lighting, offering superior quality and energy efficiency. The company is committed to developing next-generation lighting solutions that benefit a wide range of industries starting with indoor agriculture.

About Łukasiewicz

Łukasiewicz – Institute of Microelectronics and Photonics with over 50 years of history is experienced enough to conduct highly advanced research in the field of photonics, considered to be the technology of the 21st century. Its scientists are working intensively on the development of optical miniature integrated circuits in the infrared range, the so-called Photonic Integrated Circuits (PICs), which are the photonic equivalent of microprocessors and open up completely new possibilities for many industries and everyday life.

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