Interreg North-West Europe
EUROPEAN UNION
OIP4NWE
European Regional Development Fund

NEWS
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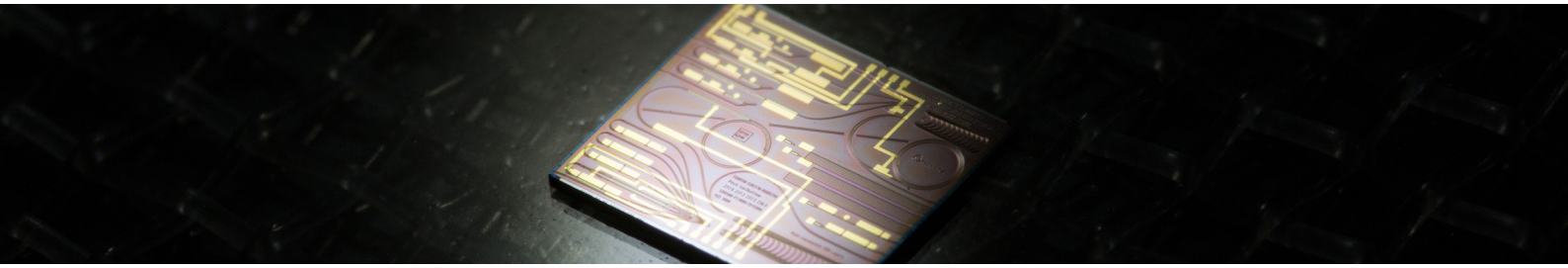
OIP4NWE Vouchers – these companies benefited from the cooperation with the OIP4NWE network!

The open innovation program OIP4NWE has launched its innovation support fund to stimulate uptake of integrated photonics technology by SMEs. By providing innovation support to SMEs across North-West Europe, OIP4NWE contributes to the competitiveness and innovativeness of European SMEs on the global markets. Six companies applied for receiving innovation support and worked together with OIP4NWE's partners in an open innovation framework to help mature their PIC-based products. Find the six highly innovative companies and the topics addressed by their approach in this document.

Omnisens SA

The scope of the project is to address the need for massive cost and size reduction of distributed fibre optic sensing with the aim of serving the emerging market related to the green energy transition.

www.omnisens.com



Bright Photonics B.V.

The scope of the project is to develop and demonstrate functionality for fast prototyping in integrated photonics.

www.brightphotonics.eu

Ommatidia LIDAR S.L.

In its strategic and innovation agenda 2022, the European Commission has clearly placed the improvement of both distance and sensitivity of LiDAR systems as one of the major challenges to be tackled by advanced sensor technologies providers in the very short term (2022-2026). The solution developed by Ommatidia addresses both distance and range thanks to a novel architecture that does not rely on moving parts and takes advantage of flood illumination providing imaging capabilities that go far beyond the state of the art. One of the key elements of the system developed by Ommatidia LiDAR is the laser source and in this project, we want to investigate paths to bring powers beyond 1W offering the possibility to reach distances beyond 300 m while providing an accuracy it the ppm range.

ommatidia-lidar.com

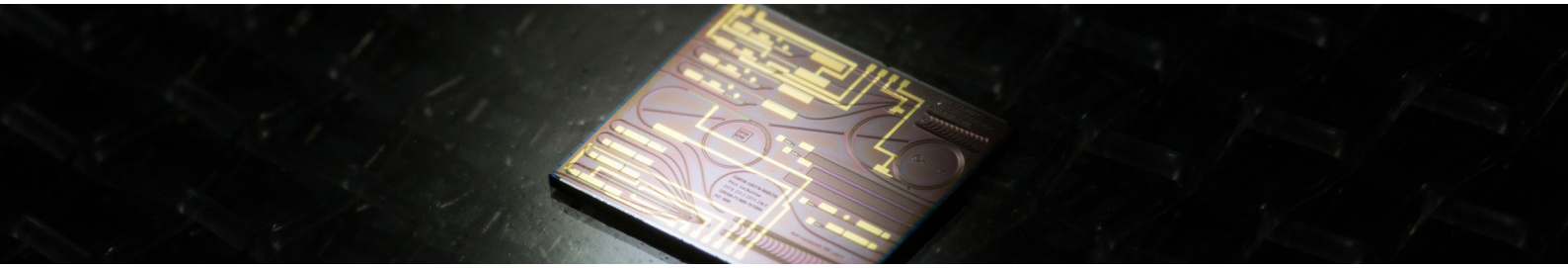
Quside Technologies SL

The objective of the project is to scale up the European production of our Quantum Random Number Generator (QRNG) based on InP PIC, leveraging our proprietary Phase Diffusion (PD) technology. Quside has already demonstrated the concept in previous MPW runs and is now looking to increase its TRL towards future commercialization. QRNG is a fundamental building block of secure cryptography systems, including quantum cryptography. In particular, the EU Commission has defined this component as strategic for the realization of EuroQCI and for the European technology independence and sovereignty.

With this project, Quside will be able to address this point, by developing a compact and high-efficient QRNG module to allow easy integration with existing quantum key distribution (QKD) systems and interoperability with the EuroQCI ecosystem. In addition, project outcomes will also be applied to conventional and post-quantum cryptography systems.

The project will focus on the design, fabrication and validation of several units of the InP QRNG PIC, as well as their integration in a standard IC package. The performance of the resulting devices as a QRNG will be analyzed to validate the fabrication and integration processes and define the roadmap towards mass production.

quside.com



Pilot Photonics

Pilot Photonics is looking into the development of fast sweeping, low linewidth tunable lasers for automotive LiDAR. Several the key requirements have been demonstrated using the technology, however some technological hurdles remain before the technology can be qualified for the automotive industry. A particular challenge is the power consumption of the laser module along with the required environmental operating temperatures, which means that the typical approach to semiconductor laser thermal management using a thermo electric cooler (TEC) is not desirable. The goal of this project is to develop an innovative thermal control strategy to allow the requisite level of temperature tuning of the laser, without the use of a TEC.

www.pilotphotonics.com

Amazec Photonics B.V.

In current clinical practice, thermodilution is used to derive cardiovascular parameters, like cardiac output, to monitor cardiovascular function in patients. A small volume of cold saline is injected into a peripheral or central vein and is than transported to the heart. With a temperature sensor equipped catheter placed in a systemic or pulmonary artery, a thermal Indicator Dilution Curve (IDC) yields cardiac output.

With the Amazec system, using photonic technology with fibre-optic sensors based on Fibre Bragg Grating (FBG) technique, high-resolution temperature sensing becomes possible. Using integrated photonics technology additional feature extraction from thermodilution curves becomes feasible. This allows reliable measurement of cardiovascular parameters, such as cardiac output and circulating bloodvolume, that can be used to optimize diagnosis and treatments. Note also that, with high-resolution temperature sensing, multiple IDC's can be measured after one single injection, with the glass-fiber positioned outside the vascular system, resulting in minimally invasive, extremely sensitive registrations of thermal events in arteries or the heart after a single injection of cold bolus.

www.amazec-photonics.nl

OIP4NWE
Open Innovation PIC Pilot

The Interreg NWE-Project "OIP4NWE" aims at establishing an open innovation pilot line for the development of a generic photonic integration technology for the production of Indium Phosphide Photonic Integrated Circuits (PICs). Integrated photonics is the emerging technology where the manipulation of light takes place on a chip, making the components an order of magnitude cheaper, smaller and more energyefficient compared to today's solutions. By providing these services to SMEs across Europe, the project reduces PIC access barriers and strengthens the competitiveness and innovativeness of European SME sustainably on the global markets.

Current generic PIC facilities are of a laboratory nature and inadequate for manufacturing and packaging PICs with cost-efficiency, speed and reliable quality. There is a strong need to increase the technology readiness level (TRL) from the current 4 to 7. The equipment for PIC manufacturing and packaging is of an innovative, specialised nature that cannot be obtained from a single country. As application of PICs grows, North-West Europe needs to stay ahead. Therefore, intense collaboration between innovation stakeholders at transnational level is an important goal of the project.

The project is funded by the Interreg North-West Europe programme, which fosters transnational cooperation to make North-West Europe a key economic player and an attractive place to work and live, with high levels of innovation, sustainability and cohesion.

www.nweurope.eu/oip4nwe