PICs4All project: open-access opportunities for photonic technologies

The complexity of **Photonic Integrated Circuits** has constantly grown in the last years and designs integrating hundreds of functions have been proposed. On the other hand it also emerged how only a small number of promising photonics devices resulted at the end in commercial products available on the market. As a response, **generic foundries** are emerging to enable the design and fabrication of variety of different photonic devices for versatile applications, using standardized high-performance technological platforms. Commonly offered building blocks comprise passive circuitry, phase modulators, polarization converters and semiconductor optical amplifiers (for active platforms). In the generic foundry model the fabrication costs can be shared by many different customers through **Multi-Project Wafer runs**, cutting down user entry costs for prototyping. This is possible because the participants of a Multi-Project Wafer run design their circuits in order to comply with the design rules of the foundry and using only the building blocks provided by the foundry.

In this scenario, Europe gained a leading position in the world of photonics by establishing an entire ecosystem able to support the users in the exploitation of the capabilities of the photonic foundries. **PICs4All** (Photonic Integrated Circuits Accessible to Everyone) project focuses exactly in this direction. It is a Coordination and Support Action founded through the **EU H2020 ICT** programme whose purpose is to bring users closer to the Photonic Integrated Circuits technology. The project is particularly addressed to Universities, Research Centres and Small Medium Enterprises and provides assistance in development and integration of photonic-related ideas, system or products and to get access to advanced fabrication facilities. It helps users choosing from a variety of modelling/design and layout software, technology platforms, packaging solutions, and testing for the PIC.

Through the **generic foundry model**, and rapid prototyping via industrial Multi-Project Wafer runs, PICs4All aims at low-cost development of **ASPICs** (Application Specific PIC). To this end, PICs4All brings together the **PIC-value chain of Europe's key players** in the field of photonic integration, including manufacturing and packaging partners, photonic CAD software partners, R&D labs and Photonic IC design houses.

For that, **PICs4All** has set up an European Network of experts in photonics constituted by 9 **Application Support Centres (ASCs)** distributed around Europe whose main task is to **stimulate** the development of novel applications based on **Photonic ICs** for various application fields, enhance cooperation between **universities, clusters, industry, and research centres**, and the most important, to enable access to the PIC technology. The **PICs4All ASCs offer** advice on the **technical and economic viability** of PIC ideas, support in **conceptualisation, design and testing** of Photonic ICs and guidance in access to **manufacturing and packaging services** through different platform technologies, covering the whole PIC development value chain. PICs4All action hence perfectly matches with existing activities such as Actphast project, that offers a free prototyping service to SMEs and could be exploited by PICs4All users.

Complete information about PICS4All project can be found on the website http://pics4all.jeppix.eu, on the website of the **Italian Application Support Centre at Politecnico di Milano** http://photonics.deib.polimi.it/application-support-centre or on the PICS4All Linkedin group.