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Wave Photonics

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A platform to unleash the potential of integrated photonics

Website

Overview

Integrated photonics uses the same process used to make conventional semiconductor chips to make circuits for light. This makes it possible to take many light-based technologies from the lab and make them useful to humanity via the scalability of semiconductor processing.

The first technology to exploit silicon photonics at scale is datacentre transceivers (Intel, Cisco, HPW, II-VI etc.) – this proves it can be done and paves the road for frontier technologies based on silicon photonics such as chip-scale lidar, diagnostic sensors, consumer healthcare sensors, quantum technologies, (particle accelerators!), eye scanners, inertial sensors, and a whole host of other technologies.

Wave Photonics is creating a platform to take these technologies to volume production.

The Challenge

The journey from idea to product is difficult – years of design work go into making the fundamental building-block components required to put together a

circuit. The existing libraries of components are minimal, sensitive to process variation and poorly optimised, and those that do exist only work for a few (telecoms) wavelengths, and so are not suitable for many other applications.

Even once this hurdle has been crossed and a circuit has been designed and verified, to turn a photonic circuit into a product requires packaging, laser integration, QA and frequently, additional processing steps such as coating, the inclusion of hybrid materials or microfluidics.

This comes together to mean that transformational technologies stay stuck in R&D.

The Solution

Wave Photonics is building a platform based on its core computational design technology which will enable designers to take products from idea to volume using pre-designed, adaptable components and integrations with packagers and other service providers.

This means they can immediately focus on their core differentiating technology.

Publications and Patents

- Patent writing on core approach in progress
- Patent application filed for application of technology to quantum secure communication

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