Revolutionising Sensing Technology by Miniaturisation of Terahertz Technology

Photonic integrated terahertz systems opens large amount of commercial sensing applications

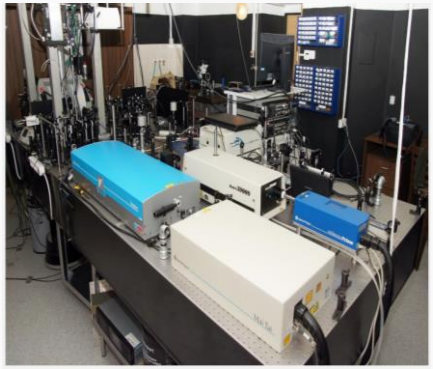
Positive Impact

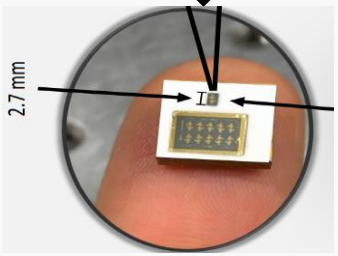
Photonic Integrated Terahertz (PIC-THZ) can be used to characterise a broad range of materials in a cost-efficient manner.

Problem

Although there are many advantages in using THz technology for sensing (e.g. for measuring moisture in solid materials), the current THz systems are bulky and do not possess ease-of-use for commercial purposes. Despite providing the fundamental footprint of molecules, these novel systems are only limited to laboratories and a limited number of commercial applications.

To make these systems commercially available, the challenge/problem lies in integrating the entire system onto a chip, leading to a portable and handheld device.





Call to Action !!!

We are looking for individuals with an excellent understanding of photonic integrated systems, optics, and electronics. In addition, an entrepreneurial mindset is highly appreciated!

If you are interested, please reach out to entrepreneur@hightechxl.com

Initial Validation

THz system comprises of several individual components. Researchers from TU/e Eindhoven has successfully integrated part of the individual components and have generated and detected THz pulses on a chip.

Solution

Having a compact and portable THz system on a chip, which could be integrated with other electronic components will enable the development of multifunctional sensing devices.

Smaller devices requires less power to operate and have reduced operation costs making them affordable for wide range of applications.

Technology

→ THz system developed on a photonic integrated chip.

→ Reduced size, weight and power consumption compared to traditional THz systems.

Potential Markets

The miniatured THz technology could be widely used in various applications.

→ Agriculture and food quality control

→ Biomedical applications

→ Coating applications

→ Chemical industry

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