Integrated THz Photonics Systems

A compact, cost effective solution to allow for high data rate wireless communication and molecular sensing

Dr Cyril Renaud's work spans from components to subsystems for THz frequency generation and detection with a strong focus on integrated photonic circuits. The THz frequency range lies between the microwaves and the optical waves and offers interesting possibilities for the detection of resonances in molecular systems. The research concentrates on harnessing the progress in integrated photonic technology and advance them to solve the key issue for THz technology to become ubiquitous by reducing the power consumption, the size and the cost of THz systems.

Beyond the predicted multi million market for THz technology, the different photonic devices (lasers, modulators and photodetectors) and integrated circuits would find industrial application in many other field such as communication and instrumentation.

Other technologies that Dr Renaud is currently working on include:
- Coolerless laser technology for optical communication
- WDM coherent systems
- Tuneable lasers

Dr Renaud's areas of expertise include:
- Optical physics
- Laser design
- Photodetection
- Photonic control systems
- Photonic integration

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Applicable to:
- Security
- Instrumentation
- Communication
- Imaging
- Sensing

Partner Companies:
- Oclaro
- Teraview
- Thales
- III-V Lab

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