OPTOMECHANICAL THZ SENSOR

THz sensors are usually bulky thermic sensors with slow response times. Our MEMS device has a nano to millimeter size, works at ambient temperature and has a very quick response time (MHz)

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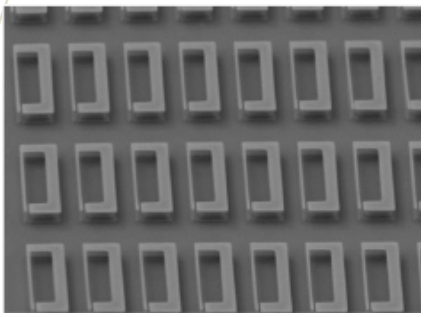
PRESENTATION

The most advanced commercial technologies for the detection of Terahertz (THz) and far infrared electromagnetic waves have major drawbacks : bolometers work at very low temperatures (4 Kelvin), while Golay cells are notoriously slow (20 Hz). Furthermore, those detectors are bulky, with a typical volume of the device in the 10cm x 10cm x 10cm range.
Our MEMS device has a volume in the mm3 range and has a very quick response time (MHz).
It works at ambient temperatures. It is possible to tune precisely the resonance frequency of the sensor at production time.



Dense array of identical THz resonators
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THz - Far-infrared - Bolometer - Golay cell -
Noise Equivalent Power (NEP)

COMPETITIVE ADVANTAGES

- Small dimensions (nano to millimeter size)
- Works at ambient temperatures
- Very short response time (MHz)
- Sensivity (equivalent to Golay cells but could be further improved)
- Easy integration (MEMS technology)

INTELLECTUAL PROPERTY

Patent application

APPLICATIONS

- Spectroscopy for security and non-destructive testing
- Imaging applications : THz cameras
- Information carrier conversion from THz wave to an optical fiber

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PUBLICATIONS

"Optomechanical THz detection with a sub-wavelength resonator"