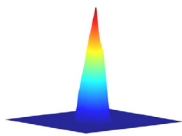




Equipped with IR-blocking THz filter



- Beam profiling
- Non-destructive testing
- Industrial process control
- Sensitive to Toptica AG TDS spectrometers.

Image using QCL THz source

- **Frequency:** 4.6 THz
- **Power:** 0.6 μ W
- **Integration time:** 50 s
- **Acquisition:** Single shot

World-record features (different models)

- **Pixel size:** Down to 15 μ m (smallest)
- **Camera size:** Coin size (smallest)
- **Active area:** > 29 x 16 mm (largest)
- **Array size:** > 1 M pixel (largest)

Specifications of the RIGI series

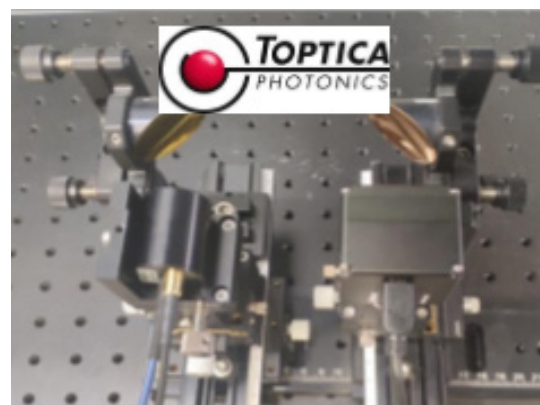
- **Detector:** Uncooled FPA micro-bolometer array
- **Pitch:** Varies starting from 15 μ m
- **Array size:** Varies from 80 x 80 pixels to 1920 x 1080 pixels
- **NEP per pixel:** < 1.5 pW/Hz at 4.6 THz
- **Sensitivity:** < 1 THz : 18 THz
- **Frame rate:** 10 Hz, 30 Hz, 60 Hz
- **Power supply:** USB- powered
- **Signal Output:** Digital: USB 3.0
- **Weight:** < 200 g (small models)
- **Dimensions:** Approx. W 3cm x H 3cm x D 4 cm (small models)

Specifications of the THz filter (by QMC Inc, UK)

- **Cut-off Freq.:** 1; 2; 3; 6; 9; 18 THz
- **Average power transmission:** > 80%
- **Out-of-band transmission:** < 0.1 %

Application example

Simple THz imaging setup based on the Toptica PCA and RIGI camera



Compared to market alternatives, RIGI is distinguished by:

Much higher dynamic range, Much lower thermal drift

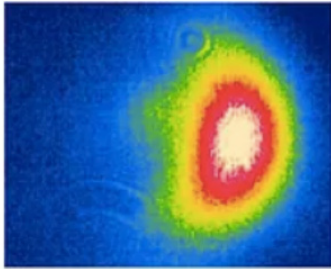
Note

Re-export outside Europe, Japan, and North America may require end-user certificate.

S: Series: Beam profiling and focusing

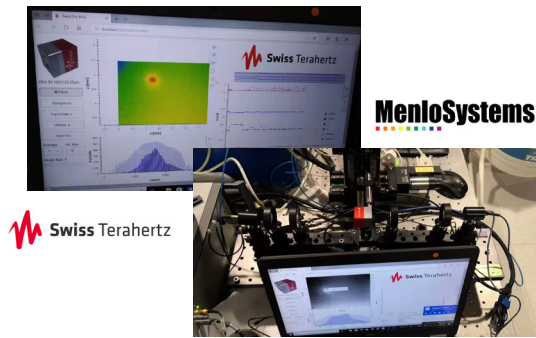
Weak sources

- **Ti:Sa Oscillator**



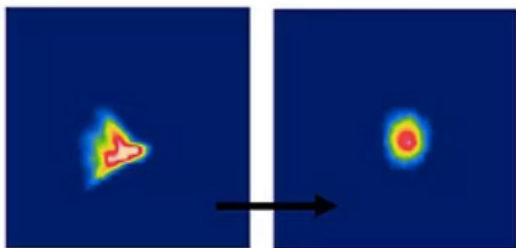
Using 80 MHz, oscillator, few 100 mW, 800 nm, to drive PCA (Dhillon, ENS)

- **Menlo TDS**



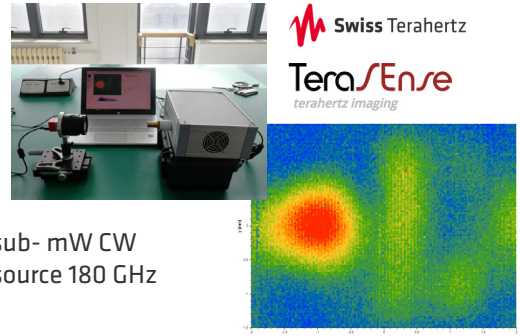
Compatible with Menlo Systems standard PDA TDS system.

- **ZnTe**



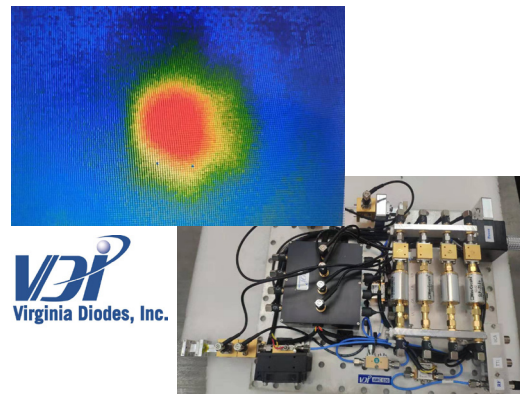
Using 200 μ J, 800 nm, small ZnTe

- **Terasense CW source**



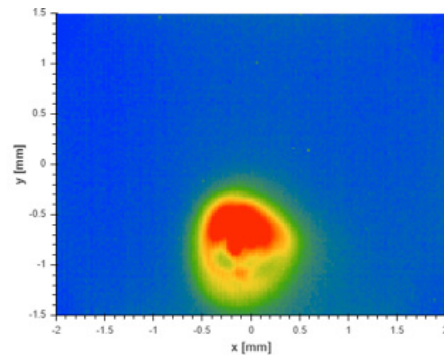
sub- mW CW source 180 GHz

- **VDI CW source**



sub-mW 480 GHz

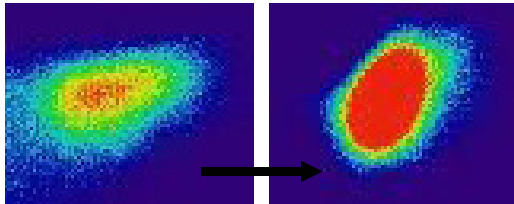
- **Air plasma**



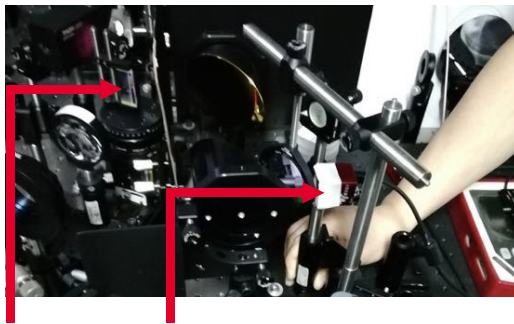
S: Series: Beam profiling and focusing

1. High power sources

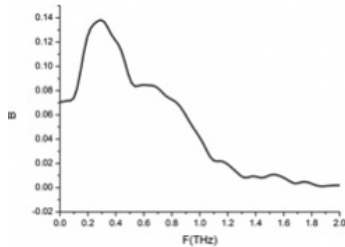
- Lithium Niobate: 0.3 THz, 1 kHz, alignment



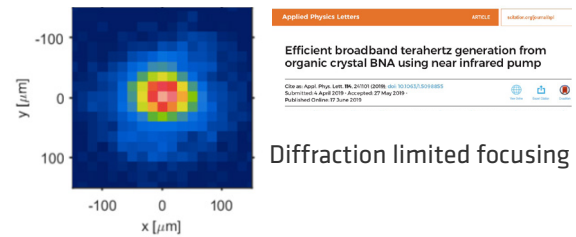
Tedious job becomes easy!



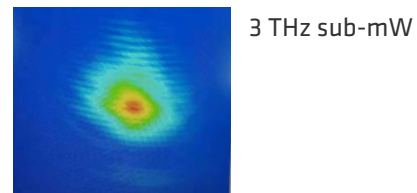
Crystal Camera



- Organic crystal BNA

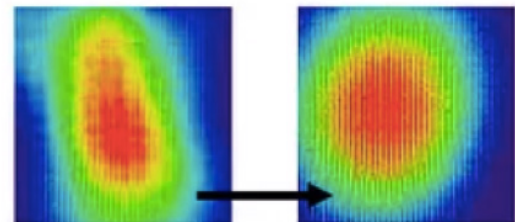


- QCL sources



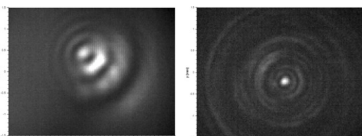
2. High average power sources

- CO₂-based THz system



S: Series: Sensitivity

QCL: Very sensitive: diffraction rings from the source



Low power vs High power cameras

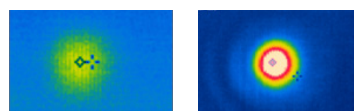


Image using CW THz source
Frequency: 0.76 THz
Acquisition: Single frame (EMPA)

S: Series: Demonstration of imaging

Image with QCL from Lytid using small low contrast plastic



 Lytid