

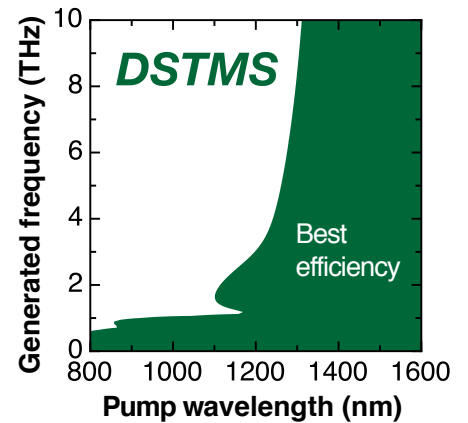
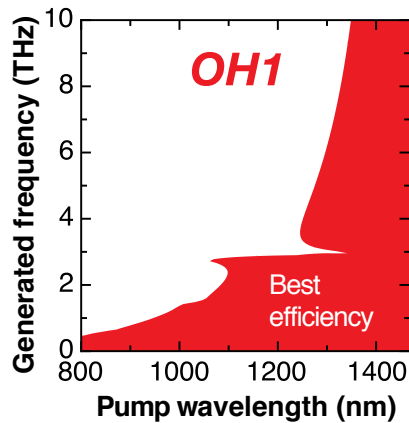
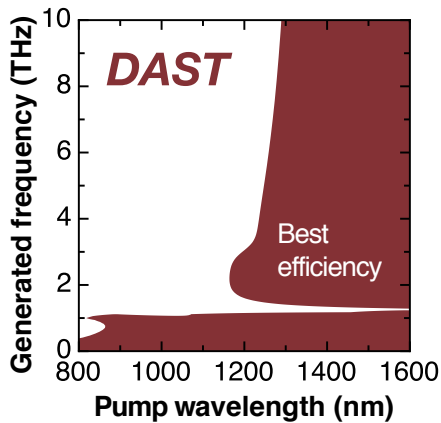
Terahertz Generator and Detector



- Efficient THz generation using optical rectification of fs pump pulses
- Efficient THz generation using nonlinear optical difference frequency generation
- Optimized for pump wavelengths of 1.2-1.6 μm and 0.7-0.8 μm
- Efficient electro-optic THz detector

Specifications	
Aperture	2 to 10 mm
Damage Threshold	250 GW/cm ² @ 1.5 μm , 150 fs pulse length 300 GW/cm ² @ 0.8 μm , 70 fs pulse length 300 MW/cm ² @ 0.5-1.5 μm , 10 ns pulse length
Photon conversion efficiency	2×10^{-4} /MW-peak power

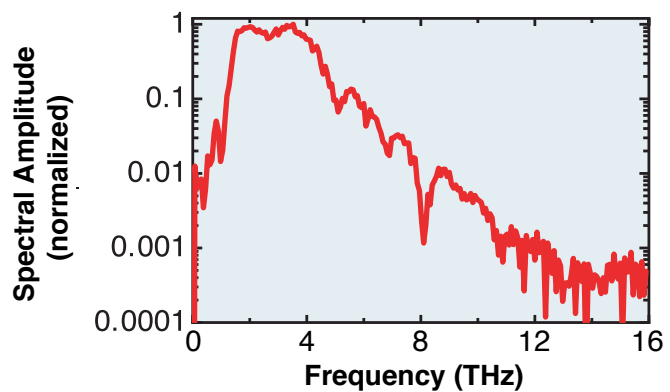
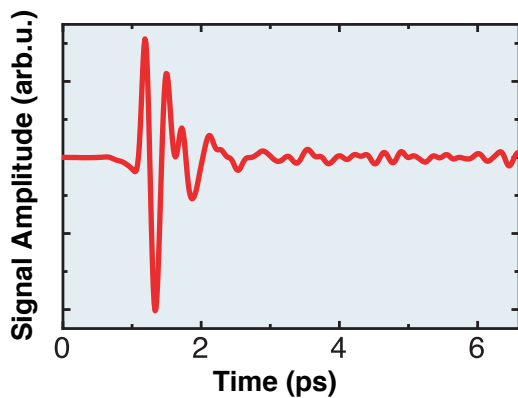
THz Frequency Ranges for Generator Materials



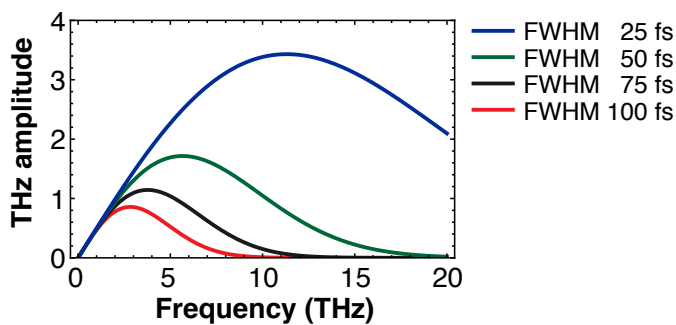
Spectral Bandwidth (measured with Rainbow Photonics instruments)

Source/Detector: 0.45 mm DSTMS
 $\lambda = 1560$ nm

Pump Pulse length: 65 fs
 Energy/Pulse: 1.8 nJ, Average Power: 180 mW



THz Frequency Range for Different Pump-Pulse Lengths



References

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- A. Schneider et al, J. Opt. Soc. Am B 23, 1822 (2006).
- F. Brunner et al, Opt. Express 16, 16496 (2008).
- M. Stillhart et al, J. Opt. Soc. Am B 25, 1914 (2008).

More information available upon request.