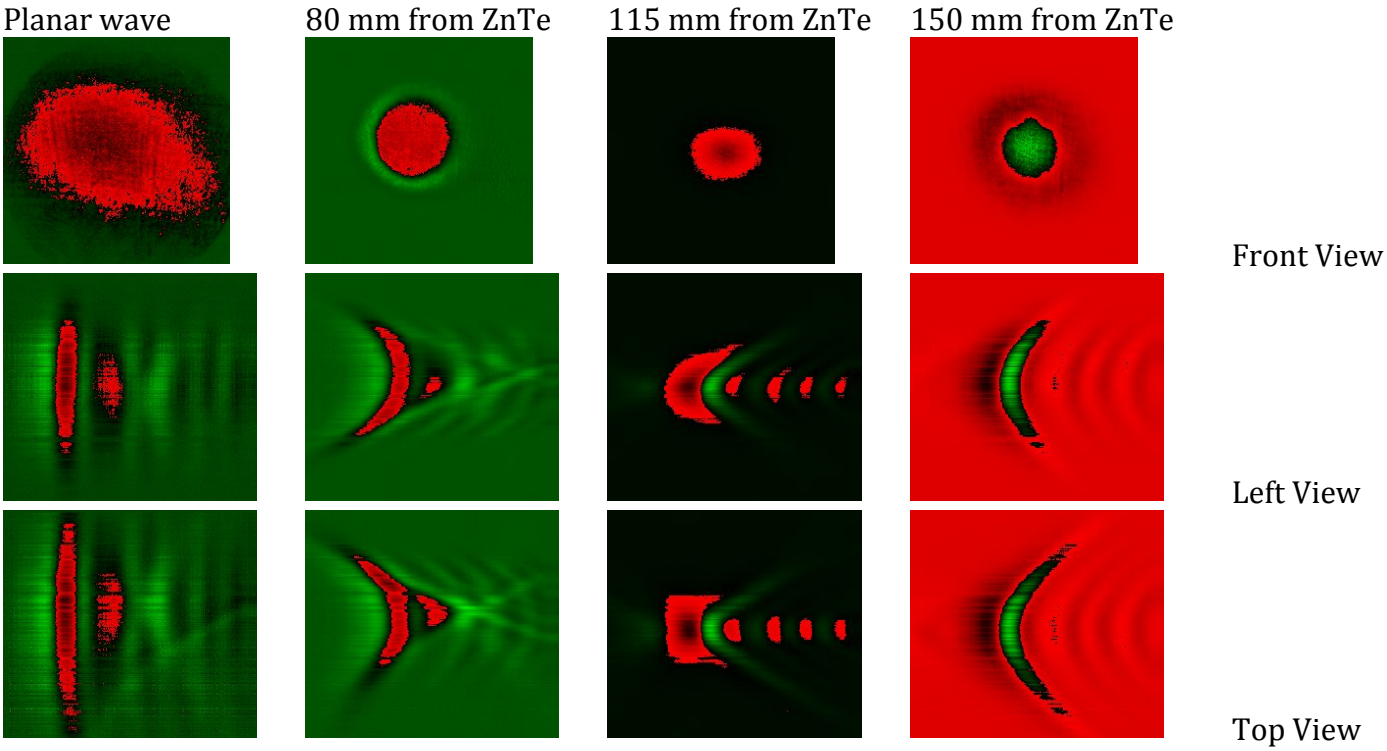
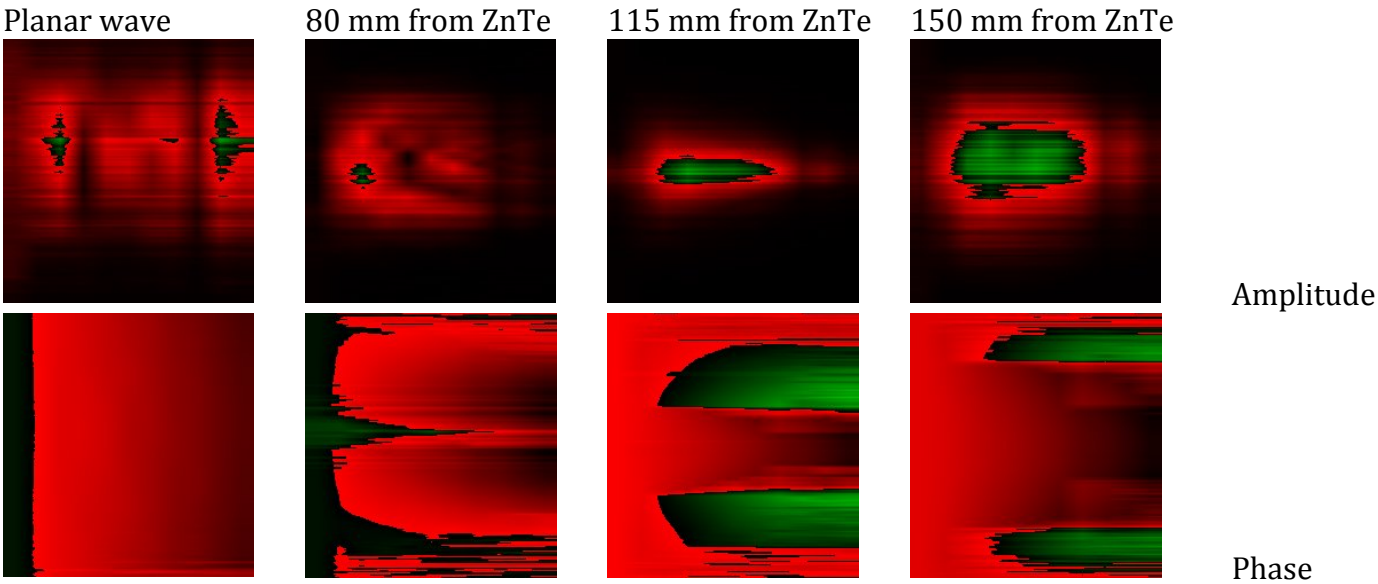
Research report
Harsono C. – PD
2014.06.20

Frequency domain analysis of THz wave



Temporal domain images with different lens distances from ZnTe

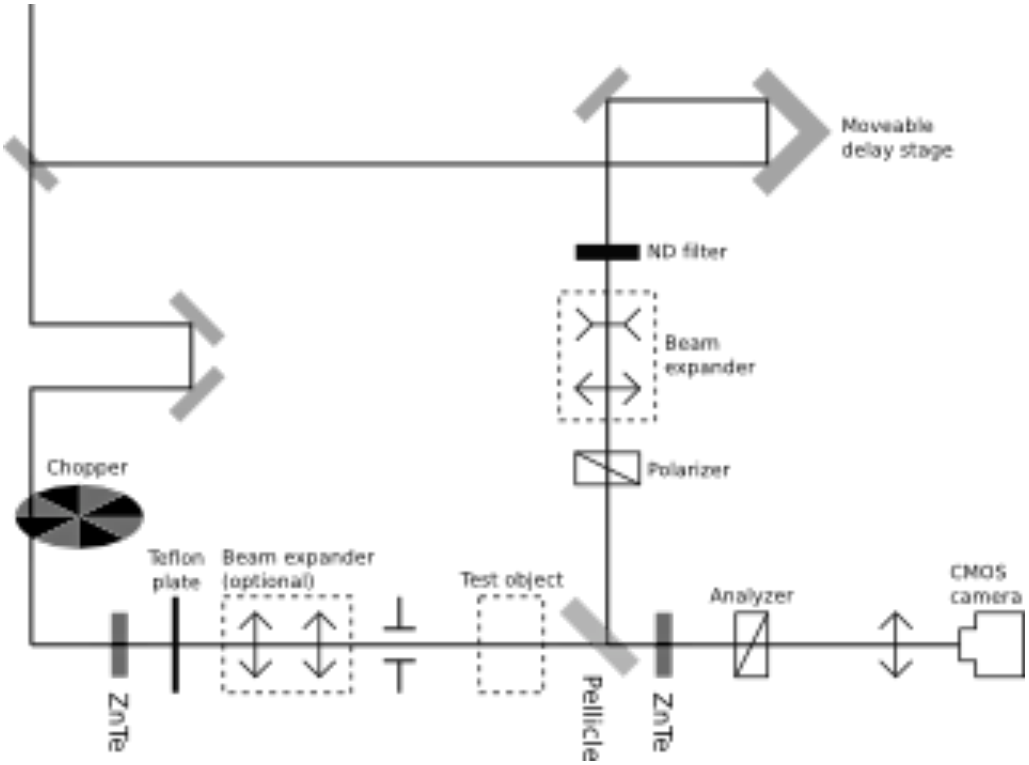


Frequency domain images (20x scale, 0-1.5 THz) with different lens distances from ZnTe

All the results above were taken with time window of 6.67 ps within 260 sampling points (equal to spectral resolution of 0.15 THz and spectral range of 38 THz).

Then, new experiments were conducted with time window of 66.67 ps within 260 sampling points (equal to spectral resolution of 0.015 THz and spectral range of 4 THz). But the analyses have not been completed yet to be included into this report.

During the last experiments, the optical setup was very bad (the THz beam and the probe beam did not overlap well), so that the center point of every image was shifted. Furthermore, the quality of beam profile after the beam expander seemed to be bad. I need to reconstruct the setup again.



Experiment setup

Experiment condition:

S = 10 mm
T = 66.67 ps
ΔF= 0.015 THz
N = 260
ΔT = 256 fs
F = 4 THz
V = 40 pulse/s
t total = 260 s
t frame = 1 s