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Abstract:We demonstrate two distinct emerging terahertz (THz) biomedical imaging techniques. One is based on the use of a new single frequency THz quantum cascade laser and the other is based on broadband THz time domain spectrocopy. The first method is employed to derive a metastasis lung tissue imaging at 3.7 THz with clear contrast between cancerous and healthy areas. The second approach is used to study an osseous tissue under several imaging modalities and achieve full THz spectroscopic imaging based on the frequency domain or on a fixed THz propagation time-delay. Sufficient contrast is achieved which facilitated the identification of regions with different cellular types and density compositions.
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