

Nanostructure Enhanced Terahertz Technology for Sensing and Imaging

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Terahertz (THz) light source, which frequency lies between 300GHz and 10THz, has recently attracted great attention because it has potential broad applications in remote sensing, medical imaging, and high frequency broadband communications, with unique applications in screening for weapons, explosives and biohazards for national security, in vivo medical imaging such as tumors and tissues. The THz Medical imaging has been feasible either by the external generation and detection of THz radiation or detection of naturally emitted THz radiation. Because of less interference and non-ionizing characteristics, THz imaging is expected to be powerful tool for safe in-vivo medical imaging ranging from assessment of wound healing to tracking cancer progression, and get more detailed images of soft tissues.

Nanostructure becomes alternative source to generate such a terahertz radiation in addition to the conventional epilayer. In this poster, we will present our current research activities of terahertz generation through the nanostructures and the application of the terahertz technology to the energy harvesting, sensing and imaging.