

# SEMINAR ANNOUNCEMENT

國立中山大學物理系111學年度第二學期專題演講

## Closing the gap – Terahertz optoelectronics and beyond

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### Abstract:

Terahertz (THz) imaging technology is growing rapidly due to its variety of potential applications in security screening, biotech pharmacy, industrial inspection, and material characterization. However, the practical feasibility of THz imaging systems is significantly limited by the low efficiency of active THz devices, long imaging acquisition time, and insufficient use of THz signal datasets. To address these limitations, we propose a high-precision, time-resolved terahertz tomography system based on plasmonic THz photoconductive antennas to offer significantly higher SNR than conventional THz imaging setups. Furthermore, we present an algorithm, terahertz differential pulse delay computed tomography (THz DPD-CT), utilizing temporal and spatial correlation of measured THz signals for time-resolved terahertz tomographic imaging, which significantly enhances the image quality of the measured objects. This paves the way toward real-time, hyperspectral terahertz 3D imagers in the near future, opening the door for various exciting applications in non-destructive sensing, imaging, and material inspection.

**TIME: Feb. 23, Thu.  
14:10**

**VENUE: PH2006**