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Fabrication of metamaterials in THz region using ink jet system and characterization using THz-TDS YEW LI HOR , HEE LIM, JOHN FEDERICI, NEW JERSEY INSTITUTE OF TECHNOLOGY TEAM — This article demonstrates the use of new fabrication techniques to fabricate metamaterials in THz range via a material deposition system. The patterns of these metamaterials follow the conventional designs which are single ring-SRR and double-Dots with varying conductivities. Highly conductive nano particle Ag and Pedot/PSS polymer inks are used as structural medium. The fabricated metamaterials of effective lattice sizes of 50 to 80 micron are then characterized using THz-TDS with 0.1 to 3 THz range in transmission mode. The detail steps of fabrication and THz-TDS experimental setup are elaborated. The absorption spectra of different thicknesses and different background substrate of these metamaterials are presented and discussed. Additional, the theoretical modeling of the fabricated samples are shown and compared with the experimental result.

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