Active Tera Hertz (THz) spoof surface plasmon polariton (SSPP) switch comprising the perfect conductor meta-material

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Abstract
The feasibility of realizing an active Tera Hertz (THz) switch by utilizing artificially corrugated perfect conductor metamaterials is reported in this paper by demonstrating that the strongly localized THz spoof surface plasmon polariton (SSPP) modes can be easily controlled by changing the refractive index of dielectrics inside a longitudinal metallic structure with a periodic array of grooves. Specifically, the paper shows that incorporation of electro-optical (EO) material such as a nematic liquid crystal (N-LC) into the plasmonic gap leads to a highly compact and efficient THz switch that is activated by a low voltage control-signal.

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