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Title:Anomalous terahertz transmission in bow-Tie plasmonic antenna apertures
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Abstract:Arrays of subwavelength dipole bow-tie apertures are designed and characterized at terahertz frequencies. For an incident terahertz field perpendicular to the longer axis of the bow tie, a strong resonance enhancement, line narrowing, and a nonmonotonic frequency shift were observed with increasing length of the tapered bow-tie arms. Such characteristic behaviors primarily originate from localized surface plasmon resonances. In addition, with a decreasing aperture size, the contribution of localized plasmons becomes prominent due to an increase in plasmonic lifetime as the terahertz pulses strongly couple with the metallic surface surrounding the bow-tie apertures.
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