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Title:On-chip terahertz systems for spectroscopy and imaging
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Abstract:A review is conducted of recent advances in the technology and applications of on-chip integrated terahertz systems, in which pulses of terahertz frequency radiation are generated by a photoconductive material, guided through a planar waveguide, and then detected coherently by photoconductive detection. These integrated systems are highly compact compared with typical free-space time domain terahertz spectroscopy systems, and allow much smaller sample volumes to be investigated, since they concentrate the propagating terahertz field to a length-scale far smaller than the diffraction limit. How both time-domain spectroscopy and imaging can be acheived using on-chip terahertz systems is discussed, along with some potential future applications for on-chip systems in the terahertz spectroscopy of single nanostructures.
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