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摘要: We present a fast and flexible terahertz filter based on diffractive gratings combined with an optically gated modulator. The terahertz radiation is diffracted by blazed gratings, and the individual frequency components are focused onto an optically excited semiconductor. Different light patterns are used to create free carriers in the bulk semiconductor material, leading to a spatial modulation of its transmission. This approach enables us to damp arbitrary frequencies and allows us to design and implement filters with almost any frequency response. By using the digital light processing technique, the switching time between different filter settings is as short as 16 ms. (C) 2012 American Institute of Physics. [http://dx.doi.org/10.1063/1.4729480]
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