424. Title:Nonreciprocal propagation characteristics of 2.5 THz submillimeter wave in two-layer parallel-plate waveguide containing n-InSb slab at room temperature
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Abstract:The temperature and magnetic field dependences of 2.5 THz submillimeter-wave propagation characteristics in a transversely magnetized twolayer parallel-plate waveguide containing an n-type InSb slab have been studied theoretically and experimentally at room temperature. The results show the formation of a resonant peak in the experimental transmission, which corresponds to the theoretically predicted slow surface wave resonance. Particularly at 295 K, a nonreciprocity of more than 20 dB is observed in the experimental transmission at the applied magnetic field of 0.5 T. The results also indicate the possibility of applying our waveguide configuration to terahertz-wave nonreciprocal devices operating at room temperature.