390. Title:Far-infrared and terahertz lasing based upon resonant and interband tunneling in InAs/GaSb heterostructures
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Abstract:A far-infrared lasing device based upon conduction-band to heavy-hole level interband transitions within a double-barrier broken-gap structure is presented. The upper conduction-band level is populated by resonant tunneling electron injection, and the lower heavy-hole state is depopulated by ultrafast valence-band electron interband tunneling. Significant optical gain exceeding 103 cm-1 for operation in the frequency range 1.9-3.4 THz is predicted from a Kane multiband model based study of an unoptimized structure.