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摘要: A strong magnetic field applied along the growth direction of a semiconductor quantum well gives rise to a spectrum of discrete energy states, the Landau levels. By combining quantum engineering of a quantum cascade structure with a static magnetic field, we can selectively inject electrons into the excited Landau level of a quantum well and realize a tunable surface emitting device based on cyclotron emission. By applying the appropriate magnetic field between 0 and 12 T, we demonstrate emission from a single device over a wide range of frequencies (1-2 THz and 3-5 THz). (C) 2012 American Institute of Physics. [http://dx.doi.org/10.1063/1.3692572]
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