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
Physics

Single Mode Optical Radiation Distribution and Reflectivity Calculations in Novel-Hot Electron Light Emission and Lasing In Semiconductor Heterostructures VCSELs

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**Abstract:** In this work, we calculate the power reflectivity in vertical cavity surface emitting lasers (VCSELs) using a new method. In VCSELs, the stop band of the reflectivity spectrum should exhibit a dip at the lasing wavelength, which is a condition for lasing. This current approximation method gives a simple analytical expression to find the power reflectivity as a function of wavelength in the vicinity of lasing wavelength,  $\lambda_0$ . The proposed method can generally be applied to semiconductor VCSEL systems for a given lasing wavelength.

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