Application of the double and triple parabolic quantum well in a laser MARTIN MOLINAR, GERMAN CAMPOY, Departamento de Investigacion en Fisica, Universidad de Sonora — Using a structure of two and three consecutive parabolic potentials (harmonic oscillator), enclosed in an infinite rectangular well, we solve the Schroedinger's equation and get the eigenvalues for the Hamiltonian. Trying with a few periods of the structure, we can see the rise of subbands. This system can be used for the development of a semiconductor laser diode built with the deposition of semiconductors on a substrate. We calculate the energy differences between neighboring states and they are then compared with those values found in the literature for similar systems. The emission frequency, the gain and the efficiency of the periodic structure are calculated, for different widths of the parabolic wells and this let us to explore the possibility of use parabolic potentials instead rectangular wells for build a semiconductor laser diode.

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