

127. Title: Coulomb effects and sub-band tunneling in quantum wells

Author: Cruz, H; Luis, D

Source: JOURNAL OF APPLIED PHYSICS

Volume:109

Issue:7

Pages: 073725

Publication year: 2011

Document type:Journal article (JA)

Abstract: We have solved, in space and time, the effective-mass nonlinear Schrodinger equation for two electron gases in a semiconductor structure. Considering a Coulomb interaction between the electron densities of each sub-band, we have obtained two time-varying moments in the heterostructure with two different frequencies. If the carrier densities are large enough, we have obtained important nonlinear effects in the carrier dynamics. In this way, we have shown the possibility of having another kind of terahertz electromagnetic radiation emerging from a double quantum well device. (C) Publication year: 2011 American Institute of Physics.