

Abstract Submitted  
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**Management of the von Roos operator.**<sup>1</sup> MARTIN MOLINAR-TABARES, Organismo de Cuenca Noroeste, Comision Nacional del Agua, LAMBERTO CASTRO-ARCE, Departamento de Fisica, Matematicas e Ingenieria, Unidad Regional Sur, Universidad de Sonora, CARLOS FIGUEROA-NAVARRO, Departamento de Ingenieria Industrial, Unidad Regional Centro, Universidad de Sonora, JULIO CAMPOS-GARCIA, Departamento de Ciencias de la Salud, Unidad Cajeme, Universidad de Sonora — When an electron is inside a semiconductor medium its effective mass rises from the shielding of the crystalline structure. When we have a semiconductor with a constant concentration the effective mass has a fixed value, and in this case, it can be easy to solve the Schrodinger equation of the particle, but if the concentration varies spatially, the effective mass will no longer constant and the solution can be difficult to find. The general form of the kinetic energy operator for a particle with variable mass is proposed for von Roos, this operator is characterized by some parameters whose values are subjected to a restriction. From a numerical solution of the Schrodinger equation we analyze the energies of an electron with position-dependent effective mass working with some values of the parameter of the von Roos operator.

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