104. Title: Energy Filtration Effect and the Possibility of the Generation of Terahertz Radiation in Resonant Tunneling Structures with Several Quantum Wells

Author: Savinov, SA; Murzin, VN

Source: JETP LETTERS

Volume:93

Issue:3

Pages: 155-160

Publication year: 2011

Document type:Journal article (JA)

Abstract: The properties of a high-frequency response in resonant tunneling double-well nanostructures have been considered for various energies of electrons arriving to a structure of electrons, various frequencies of the external electromagnetic field, and various features associated with the interaction of electronic states in neighboring quantum wells in double-well nanostructures. The energy filtration effect that is caused by the breaking of the symmetry of the high-frequency response in double-well nanostructures in a static electric field has been revealed. This effect leads to a sharp increase in the gain under conditions of the quantum amplification regime and opens real prospects of a significant increase in the efficiency of solid amplifying and generating devices based on resonant tunneling double-well nanostructure in the subterahertz and terahertz frequency ranges.