

588

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Authors: Jue Wang and Edward Wasige.

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Abstract: A self-consistent model for double barrier Resonant Tunnelling Diodes (RTD) has been investigated. The model involves using the Airy function to obtain an accurate transmission coefficient for electrons tunnelling through the barrier and the consideration of potential shift due to free charge distribution. It will serve to optimize the RTD structure for terahertz applications. A good agreement has been achieved between computed and measured IV characteristics of RTDs.

Keywords: Resonant tunnelling diode, Self-consistent, Airy function, Quantum well