



# AIUB DSpace Publication Details

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Author(s) Name	Mr. Mehedi Hasan, M. Tanseer Ali, Md. Kamrul Hasan, Shaira Tashnub Torsa, Mahfujur Rahman
Contact Email(s)	mehedi@aiub.edu
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## Abstract

The growth of pepped-up determining demand of final consumers always forces devices and circuits to increase power and speed. Only resonant tunneling diode can solve this problem and can be able to take a vital role in many nanoscale applications. This research paper demonstrates the simulations of the Resonant Tunneling Diode (RTD) by using Hartree Model for the single barrier (1B) and the double barrier (2B) Resonant Tunneling Diodes by the using of NEMO5 considering NEGF. In addition, switching applications also require a Large Peak to Valley Voltage Ratio (PVVR) to reduce energy loss. In this article, it has been clearly explained that compared to the Thomas Fermi Model, Hartree Model improves the Peak to Voltage Valley Ratio (PVVR) by 21.21%. The results of the Double Barrier RTD showed much better performance than the Single Barrier RTD. Furthermore, the I-V characteristic verified the notable improvement for the Hartree model.

