Physical Properties of Zener Tunnelling Nano-devices in Graphene: Abstract Figure

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1 Short Abstract

The transmission properties of graphene Zener tunnelling nano-devices were obtained and used with an adaptation of the Landauer formalism to calculate an analytical expression for current and conductance. A comparison between the theoretical model and experimental results shows the similarities of graphene nanoribbons and infinite sheet graphene.
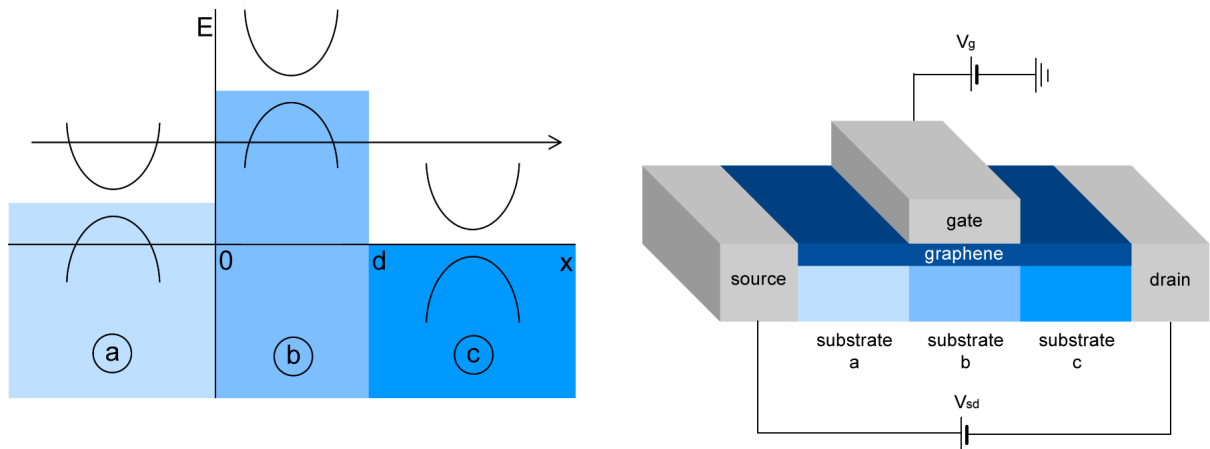
2 Abstract Figure

Figure 1: (Left) Diagram of a Zener tunnelling barrier in graphene, including energy spectrum in specific regions. Here a right travelling massive charge carrier is shown transmitting through a barrier with width d and heights $V_b > V_a$ and $V_c < V_a$. (Right) A simple example of a graphene transistor. A third substrate to the right of the gate region creates Zener tunnelling properties.