Abstract:

Length of saturation region (LVSR) as an important parameter in nanoscale devices, which controls the drain breakdown voltage is in our focus. This paper presents three models for surface potential, surface electric field and LVSR in double-gate Graphene nanoribbon transistors. The Poisson equation is used to derive surface potential, lateral electric field and LVSR. Using the proposed models, the effect of several parameters such as drain-source voltage, oxide thickness, doping concentration and channel length on the LVSR is studied.