



The influence of plasma parameters on device characteristics of a Carbon Nanotube Field Effect Transistor (CNTFET)

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The authors have tried to simulate a Carbon Nanotube Field Effect Transistor (CNTFET) incorporating CNT grown in the presence of plasma as the channel material. A lot of improvement in the efficiency of the device is observed as compared to already existing device due to superior properties of CNT. We have also tried to understand and establish a relation between the various plasma parameters and performance of the device which is totally a new concept. Various device characteristics such as drain current, channel resistance, transconductance and output conductance have been evaluated for differing plasma parameters. The plasma parameters have a direct control on the device geometry and by controlling the device geometry, the device characteristics can be influenced. The device proposed here has a lot of applications in the field of sensors, digital applications such as in the case of logic gates etc. The results obtained through simulated device are in good agreement with the existing experimental observations.

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