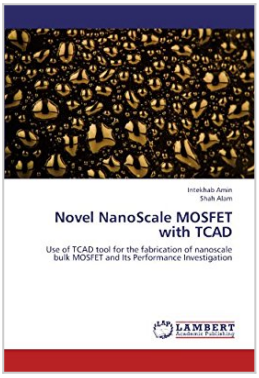

Novel NanoScale MOSFET with TCAD: Use of TCAD tool for the fabrication of nanoscale bulk MOSFET and Its Performance Investigation

By Intekhab Amin, Shah Alam

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Scaling of MOSFET is being carried out through several dcades and we moved from micron to nano scale region. Scaling improves performance but at the same time it has some adverse effect, because as MOSFET is scaled down the source and drain come so close to each other so that the gate is loosing control over the channel is called short channel effect. Here work have been carried by doing engineering fabrication technique to reduce its SCE under 40nm channel length of an engineered device and is compared the non engineered device of having same technology to have better short channel immunity of an engineered device as compared to that of non engineered device. Since scaling means scaling of its supply voltage also if not then electric field will become a severe factor creates impact ionization and hence its performance by creating electron-holes pair so supply voltage has to be scaled down to reduce peak electric field.Its high frequency small signal analysis is also carried and compared.

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