Abstract-Aggressive scaling of silicon technology over the years has pushed CMOS devices to their fundamental limits. Pioneering works on carbon nanotube during the last decade, possessing exceptional electrical properties have provided an intriguing solution for high performance integrated circuits. So far, at best, carbon nanotubes have been considered only for the channel, with metal electrodes being used for source/drain. Here, alternative schemes of “All–Nanotube” transistor are presented where even the transistor components are derived from carbon nanotubes which hold the promise for smaller, faster, denser and more power efficient electronics.

Index Terms: CMOS, carbon nanotubes and chirality

References

Figures:

Proposed Model I

Figure 2(a): Sectional view of the proposed model

Figure 2(b): Band diagram before contact

Figure 2(c): Band diagram after contact

Figure 2(d): Band diagram with proper biasing
Proposed Model II

Figure 3(a) Sectional view of the proposed Model II

Figure 3(b): Band diagram before contact

Figure 3(c): Band diagram after contact