


CNT HSPICE Modeling and Analysis
Survey



Name:

1. What is CNT? What properties make it different from existing Technology?

CNT - Carbon nanotube. They exhibit extraordinary strength and unique electrical properties and are efficient conductors of heat. Electrical conductivity is six orders of magnitude higher than copper, can be metallic or semiconducting, tunable bandgap, very high current carrying capacity. Excellent field emitter

2. Explain various CNT synthesis process? And which is better?

→ Evaporation of solid carbon in arc discharge.

→ Laser ablation.

→ Catalytic chemical vapor deposition of carbon containing gases

Chemical vapor deposition process is better since the single SWNT for the 1st time, Aligned nanotubes, large scale possible, Relatively cheap, diameters, chiralities, metallic or semiconductor all uncontrolled.

3. Differentiate CNFET and CMOS in terms of

a. Power dissipation (based on the HSPICE analysis)

Power dissipation for CNFET is less than CMOS

4. What are the critical issues in CNT technology that might be a design bottleneck?

Bulk production is hard

To make contacts is hard

Control of diameter is hard.

It is hard to develop inexpensive manufacturing processes.

Novel architecture.

Self Evaluation and Feedback

1. What more would you like to see included in this lecture?

More practical video which shows current developments in VLSI technology.

2. Will this lecture help you in your future to learn more about nano circuit design? If yes then how?

Yes, since we are doing the circuits practically in labs using appropriate softwares.

3. How effective you think you learnt through these two lectures

I learnt many things regarding CMT. It actually creates interest in you when you learn something developing aspect in your field.

4. Are you more likely to register for a design course using emerging nano-devices

Since it is the emerging technology and has good scope in future I definitely would want to utilize this opportunity. But I just want to have/learn some actual ^{base} concepts ~~of this~~ that would help me more to understand this course better.