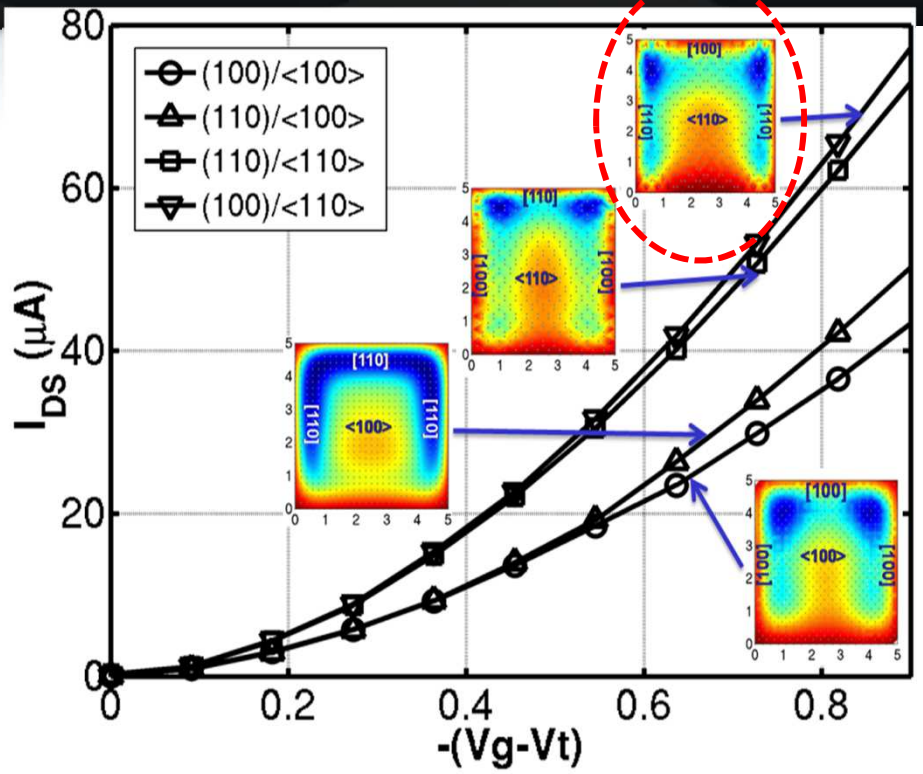
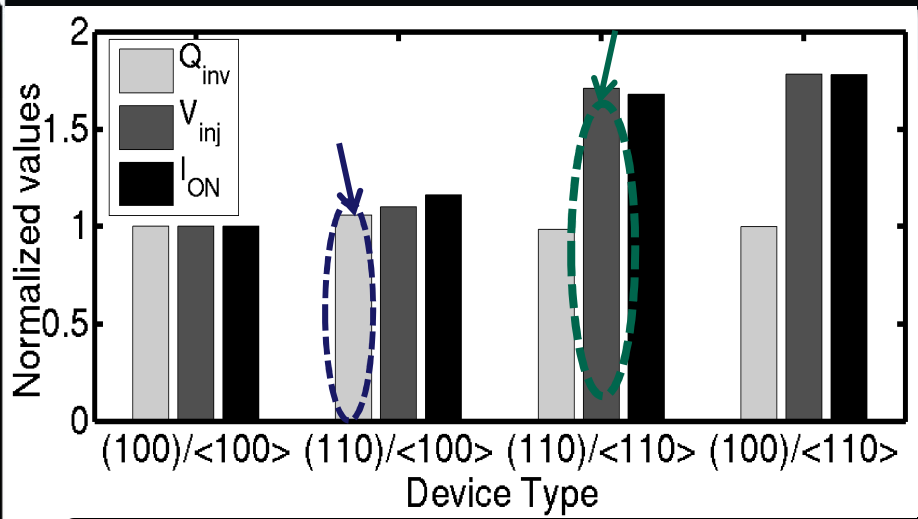
Performance of Trigated Silicon Nanowire pMOSFETs : Surface and Orientation dependence

Results: I_{DS}-V_{GS} for 4 different pMOS





- Charge controlled by number of [110] surfaces.
- Higher V_{inj} for <110> orientation

Objective:

- Study performance of SiNW pMOSFETs.
- Study of impact of *surface* and *transport orientation*

Approach:

- Used Bandstructure Lab (powered by OMEN)

Impact:

- Channel orientation is more important in nanowire FETs compared to surfaces.
- Need to move to other channel materials like Ge to further improve I_{ON} in PMOSFETs.
- Results presented *in IEEE WMED, 2009*

PURDUE UNIVERSITY Saumitra R Mehrotra