

Objective:

- Understand the effects of bandstructure in nanoscale nanowire devices
- Understand the effect of charge self-consistency on the dispersions

Approach:

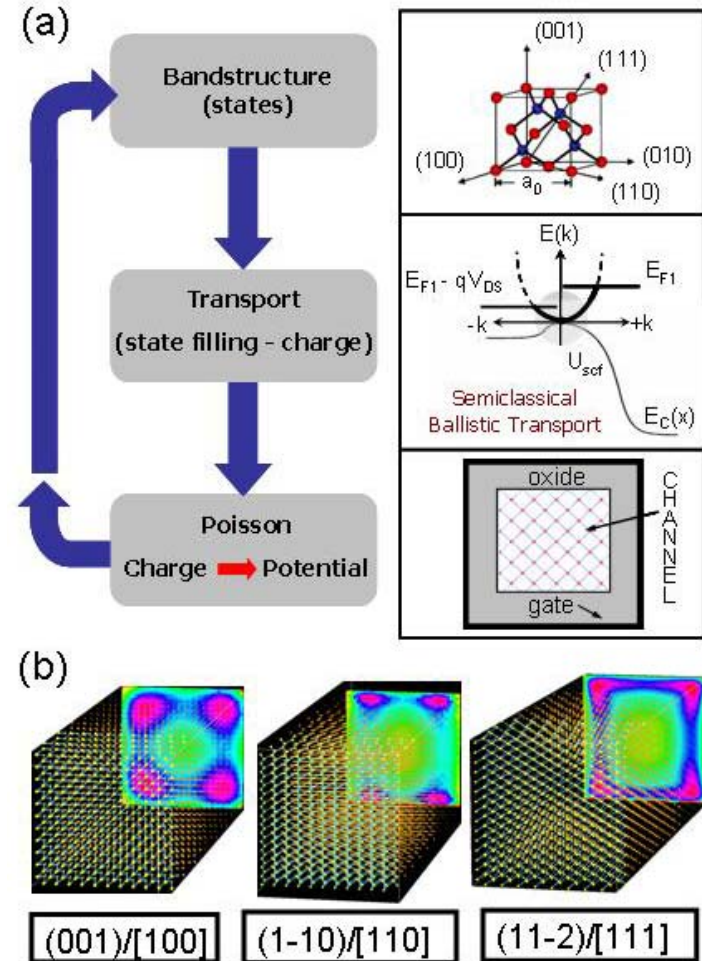
- Use the $sp^3d^5s^*$ -SO atomistic TB model for the electronic structure
- Use the semi-classical ballistic top-of-the-barrier transport model.
- Solve the 2D Poisson in the cross section of the wire
- Self-consistently iterate with the bandstructure calculation model

Impact:

- Transport features in nanowires in various orientations can be explained
- Prediction for performance optimization

Publications:

- Tool at nanoHUB.org Band Structure Lab
- IEEE Nano [J109]



Appeared on the cover of the special issue of IEEE TED/TNT on nanowire electronics