Objective:

- Low voltage, good turn-on/off switches
- Develop low sub-threshold swing FETs with band-to-band-tunneling (BTBT)
- Provide guidance to experiments

Approach:

- Utilized OMEN – atomistic, full band quantum transport simulator
- 3 diff. geom., InAs, 20nm gates. 6nm body/diameter, 1nm Oxide, 5e19/cm^3

Result – 3 different devices have:

- dramatically different sub-thresholds
- Slightly different gate controls

Impact:

- BTBTdevices much more sensitive to smooth band bending than expected
- gate all-around NW fairs best.

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