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Objective:

- MOSFET scaling solutions at $L_g < 8\text{ nm}$

Approach:

- Engineer heavy transport masses in nanowire devices using orientation and strain engineering.
- Full band ($sp^3d^5d^*$ TB model) quantum transport simulations using OMEN.

Result:

- Heavy mass limits S-D tunneling and improves over ON-OFF current ratio.
- Near ideal I_d - V_d even at channel lengths, $L_g = 3\text{ nm}$.
- Scaling solutions at $L_g < 8\text{ nm}$ lie within Si material.

Impact : Trans. Elec. Dev. (submitted.)

