Performance analysis of SiGe/Si core/shell NWFETs

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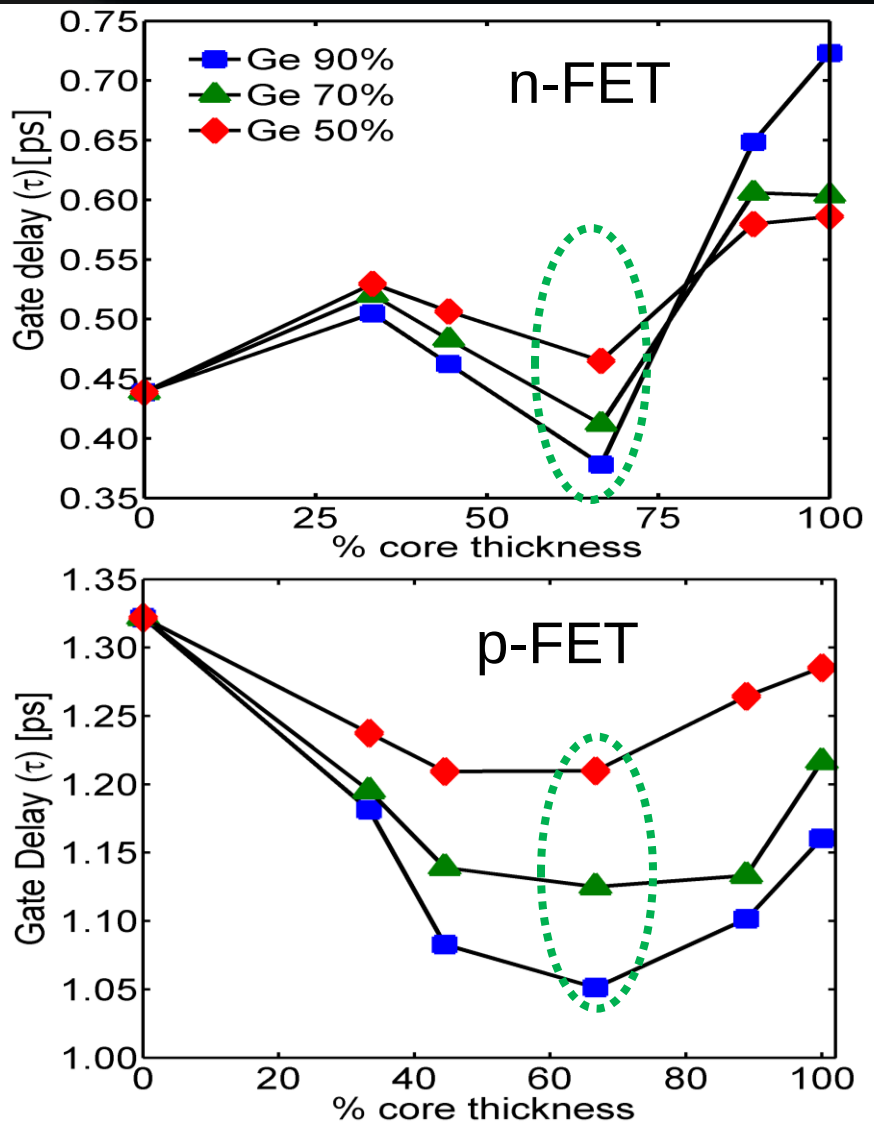
Objective: Performance assessment of SiGe nanowire FETs (NWFETs), ultra-scaled regime, next-gen CMOS solution

Approach:

- **Bandstructure:** Virtual Crystal Approximation in TB **(TB-VCA).**
- **Transport:** Ballistic Virtual Source model
- **Performance metrics:** v_{inj}, I_{ON} and **intrinsic gate delay (τ_D).**

Results:

- n/p-FETs better for higher Ge%.
- n-FETs →optimal Si shell thickness.
- pFETs →thinner Si shell and high-k.
- τ_D SiGe n-FETs **1.2 times >** Si.
- τ_D SiGe p-FETs **1.25 times >** Si.



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