

Objective: Simulation of CV for bulk SiGe p-mosFETs and matching to experimental CV data.

Approach:

1. Obtain bandstructure for SiGe using Tight-binding based VCA approach..
2. Extract effective masses and band-offsets from TB calculations.
3. Run self-consistent CV simulations.

Results:

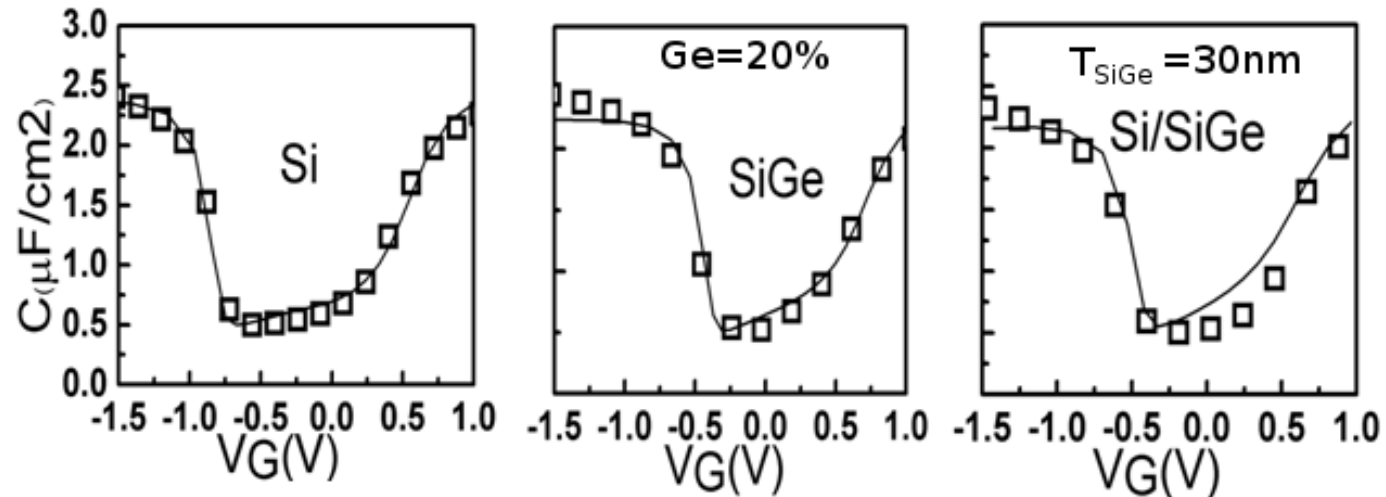
- Very good match with experimental CV curve for 3 different types of SiGe p-MOSFETs.
- Improvement in both performance and reliability shown due to improvement in transport hole effective mass and increase in hole tunneling current.

Impact:

• Work published in IEEE, EDL, 2011.

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Simulated (line) and experimental (dot) CV for p-mosFETs.