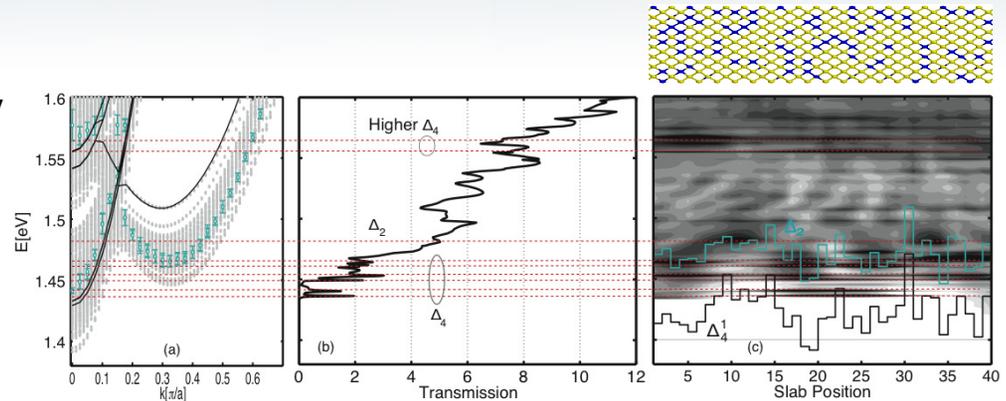## Objective

- Study electron transport in SiGe alloy nanowires using two approaches
  - » Supercell electronic structure
  - » NEGF
- Provide better understanding of transport characteristics by correlating the characteristics from both formalisms

Approach

- Strain relaxation: VFF-Keating model
- Bandstructure: Unfold supercell eigen-spectrum
- Transmission and DOS: NEGF

Ref: J. Comput. Electron. **7**, 350 (2008)

Impact

- Transmission turn-ons can be accurately predicted from unfolded supercell bands
- Transmission peaks arise from localized DOS
- Traditional VCA approximation is unable to model these effects