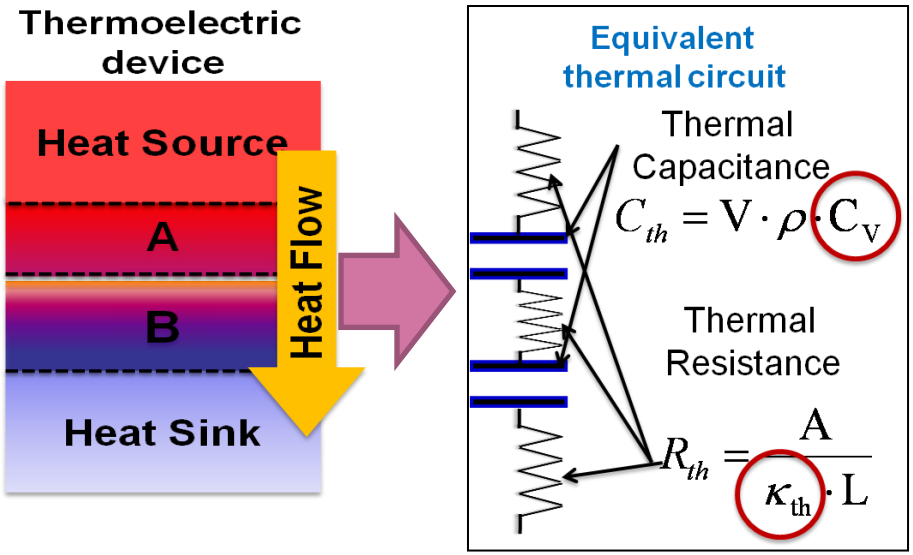
Strain Engineering of lattice thermal properties in Silicon nanowires: Abhijeet Paul & Gerhard Klimeck



Objective: Engineering material thermal properties using strain to improve system level performance.

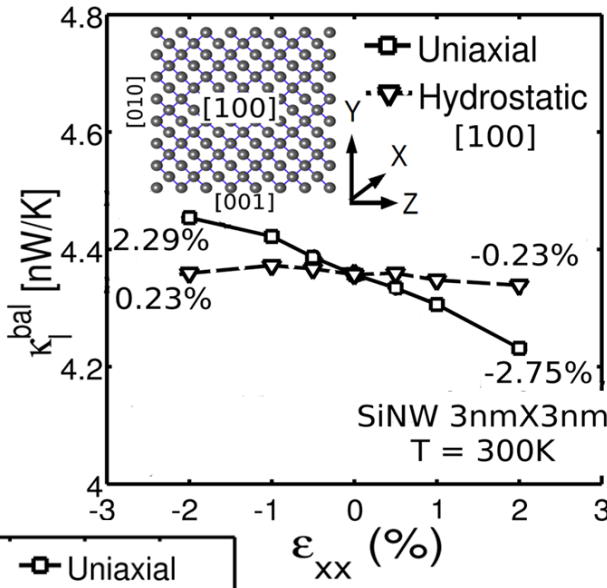
Approach:

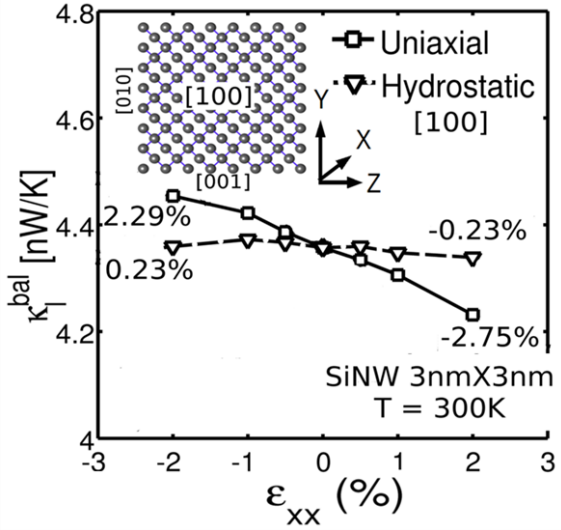
[1] Modified Valence Force Field to model phonons in strained Si nanowires.

[2] Study the effect of strain on specifc heat (Cv) and thermal conductance (k_l).

Results:

Uniaxial strain effectively tunes κ_l.





Hydro-static strain tunes Cv.

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