

## Phonon Transport and Thermal Conductivity in a Four-Terminal Structure

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**Abstract:** With the help of scattering-matrix method, the acoustic phonon ballistic transmission and the thermal conductivity are studied in detail in a four-terminal structure. We find that the transmission coefficients and the reduced thermal conductance for each region sensitively depend on geometric parameters, and are of quantum character, but the reduced total thermal conductance for all regions seems independent of structure parameters when the temperature is not very low. Our results show that one can control the thermal conductivity for each region to match practical requirements in devices by adjusting the geometric parameters.

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