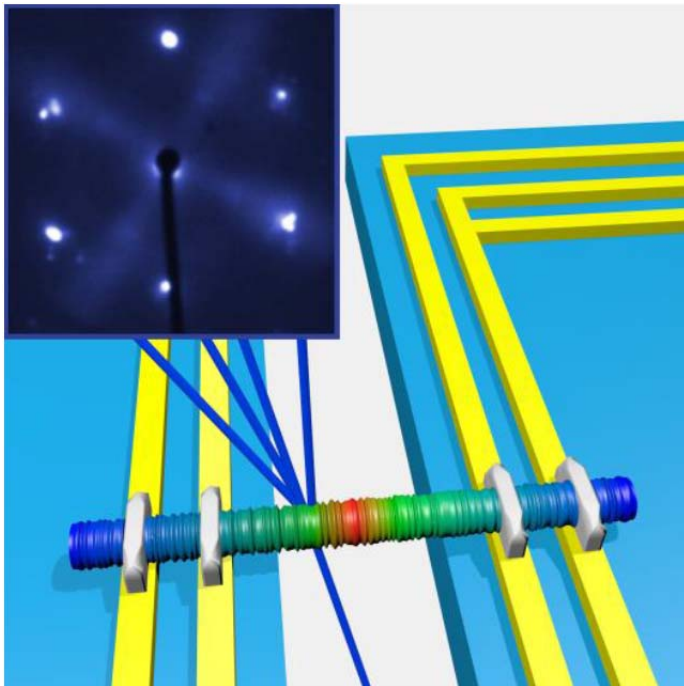


### Surface effects on thermoelectric properties of metallic and semiconducting nanowires

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#### Short Abstract

Metallic and semiconducting nanowires are of interest to the field of thermodynamics because they act as model for investigating the influence of surfaces on thermoelectric transport properties. Combined thermoelectrical, structural and chemical characterisation of individual metallic and semiconducting nanowires is presented. The thermoelectrical properties are determined in the temperature range between 1.4 K and room temperature. Transmission electron microscopy yields the structural properties, the chemical composition and the morphology of the nanowires. This comprehensive study unambiguously allows identifying surface effects on the thermoelectric properties and scattering mechanisms for electrons and phonons.



**Above.** Calculated surface temperature of a multi-ridged nanowire.