Phonon Depletion in Thermoelectric Nanostructures

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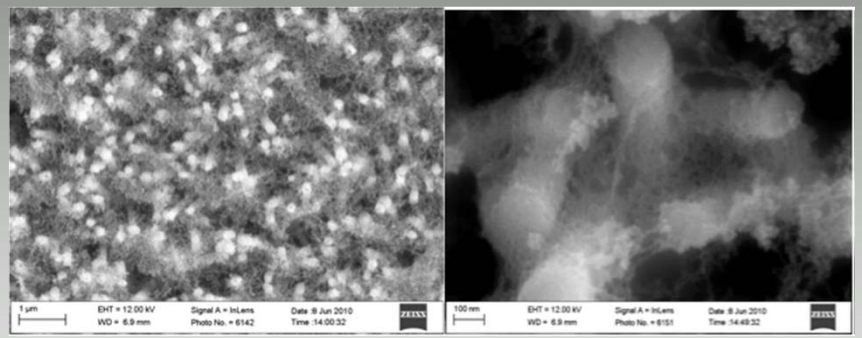
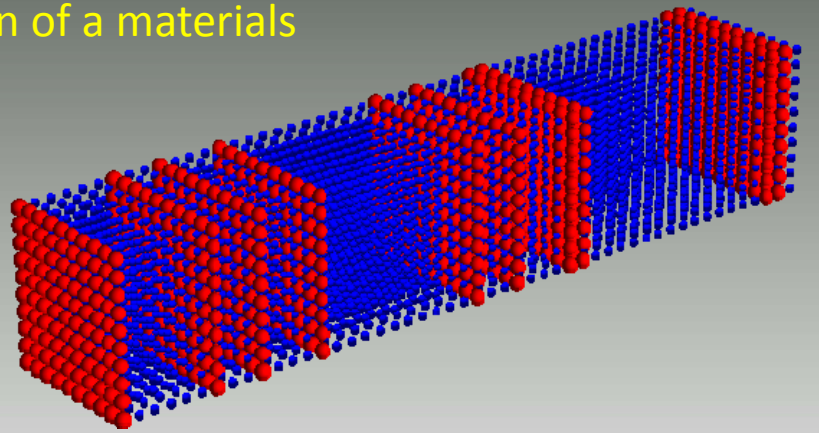
Nanocomposite thermoelectric materials offer the hope of high efficiency materials through independent optimization of a materials electrical and thermal properties.



Succesful fabrication of high Seebeck coefficient ZnO nanowires embedded in an aerogel matrix has been achieved. The material has the potential for thermoelectric figures of merit greater than three.



Random multilayer thin films offer the hope of tremendous reductions in lattice thermal conductivty through Anderson localization of phonons.