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**Thermoelectricity: A Bottom-up View**

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It is well-known that the nature of electronic transport changes significantly as the length L of the active region of a device is reduced from millimeter down to nanometer dimensions.Historically our understanding of electrical resistance andconduction has progressedtop-down: from large macroscopic conductors to small atomicscale conductors. Indeed thirty years ago it was common to argue about what, if anything, theconcept of resistance meant on an atomic scale. Since then there has been significant progressin our understanding, spurred by actual experimental measurements made possible by thetechnology of miniaturization. However, despite this progress in understanding the flow ofcurrent on an atomic scale, the standard approach to the problem of electronic transportcontinues to be top-down and we have argued elsewhere that an alternativebottom-upviewpoint can be extremely illuminating [1]. In this talk we will briefly summarize this viewpoint and discuss the unique insights it provides into the subject of thermoelectricity and thermoelectric device design in general and into the possibilities of molecular thermoelectrics in particular.

[1] See for example, S.Datta, "Nanolectronic Devices: A Unified View," to appear in The Oxford Handbook on Nanoscience and Nanotechnology:Frontiers and Advances, eds. A.V. Narlikar and Y.Y. Fu, volume 1, chapter 1,arXiv/0809.4460