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【123】 Thermal circuit elements with Telescopic nanowires

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Heat dissipation has become a critical problem in the performance of electronic devices, thus, reducing their lifespans. Therefore, to manipulate and control heat, thermal circuit elements analogous to electronic ones like thermal diodes, transistors, and thermal logic gates are needed. In our current research, we have experimentally studied telescopic nanowires for their thermal rectification capabilities giving a rectification ratio of up to 8% as a function of applied temperature bias, thus, exhibiting the thermal diode effect. This is the first experimental study on telescopic nanowires indicating rectification and an important contribution towards the development of thermal circuit elements.

Theoretical Work

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