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Printable Graphene-based Thermoelectric Device with High Temperature Capability TIAN LI, YANAN CHEN, DENNIS DREW, LIANG-BING HU, University of Maryland, College Park, NANOMATERIALS FOR EMERGING DEVICES COLLABORATION — Thermoelectric devices are of particular interest due to their capability to convert heat into electrical power. We demonstrate the use of a Graphene-based thermoelectric device that can generate output voltages of hundreds of millivolts with an illuminating Graphene strip as the blackbody source.\Our proposed device is superior for thermoelectric conversion mainly due to its high temperature capability that yields a maximum Carnot efficiency limit of 90% (referenced to room temperature) and a high Seebeck coefficient. Our device is also macroscopic with good mechanical strength and stabilized performance, making it attractive for large scale and reliable thermoelectric devices.

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