

Abstract Submitted
for the MAR10 Meeting of
The American Physical Society

Lattice Thermal Conductivity of Graphene SUCHISMITA GHOSH¹, DENIS L. NIKA, EVGENII P. POKATILOV, IRENE CALIZO², ALEXANDER A. BALANDIN, Department of Electrical Engineering, University of California-Riverside, CA 92521 — It was predicted by Klemens [1] that the lattice thermal conductivity of graphene should be higher than that of bulk graphite provided that graphene flake is large enough [1-2]. We have found an experimental confirmation to this prediction by measuring the thermal conductivity of the suspended graphene flakes [3-4]. We have also studied the evolution of the lattice properties as the number of graphene layers increases and developed the theory, which takes into account all allowed Umklapp scattering processes [5]. The superior thermal properties of graphene are beneficial for proposed electronic applications [6]. The work at UCR was supported by DARPA-SRC through FENA and IFC. [1] P.G. Klemens, J. Wide Band. Mat., 7, 332 (2000) [2] D.L. Nika, et al., Appl. Phys. Lett., 94, 203103 (2009) [3] A.A. Balandin, et al., Nano Lett., 8, (2008) [4] S. Ghosh, et al., Appl. Phys. Lett., 92, (2008) [5] D.L. Nika, et al., Phys. Rev. B 79, 155413 (2009) [6] A.A. Balandin, IEEE Spectrum, 2009.

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Date submitted: 14 Dec 2009

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