

Abstract Submitted  
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**Thermoelectricity in Graphene: Effects of a gap and magnetic fields**<sup>1</sup> SUBROTO MUKERJEE, Indian Institute of Science, Bangalore India, AAV-ISHKAR PATEL, Indian Institute of Technology, Kanpur India — We calculate the thermopower of monolayer graphene in various circumstances. First we show that experiments on the thermopower of graphene can be understood quantitatively with a very simple model of screening in the semiclassical limit. We can calculate the energy dependent scattering time for this model exactly. We then consider acoustic phonon scattering which might be the operative scattering mechanism in free standing films, and predict that the thermopower will be linear in any induced gap in the system. Further, the thermopower peaks at the same value of chemical potential (tunable by gate voltage) independent of the gap. Finally, we show that in the semiclassical approximation, the thermopower in a magnetic field saturates at high field to a value which can be calculated exactly and is independent of the details of the scattering. This effect might be observable experimentally.

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