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A simple model of thermal conductivity in supersolid Helium JOSHUA THIBODAUX, ILYA VEKHTER, Louisiana State University, MATTHIAS GRAF, ALEXANDER BALATSKY, Los Alamos National Laboratories — The recent discovery of the decrease of the torsional oscillator period in solid Helium has led to a renewed interest in a supersolid state. The simplest model for this state is one in which the vacancies undergo Bose-Einstein condensation. Within this model we use the Boltzmann equation to investigate the thermal conductivity of normal ^{4}He and super solid by considering phonons interacting with a gas of vacancies. We analyze the temperature dependence of the thermal conductivity and specific heat for different vacancy concentrations. We will discuss the consequences of our calculations for existing and future experiments.

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