

Università degli Studi di Trieste

Dipartimento di Fisica

Alumnorum Colloquia

Alberto Cepellotti

Theory and Simulation of Materials, Ecole Polytechnique Federale de Lausanne, Switzerland

Department of Physics, University of California, Berkeley, California

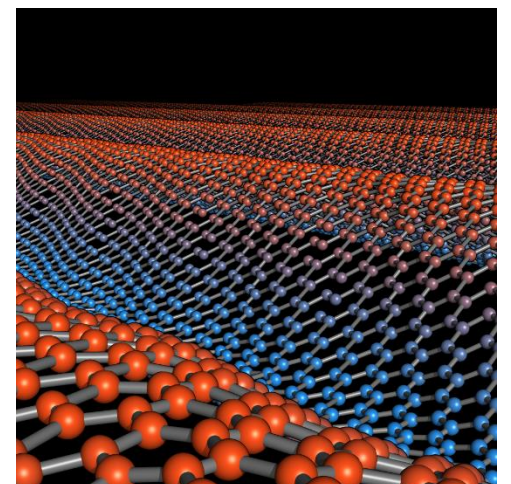
Tuesday, January 10, 4.00 PM - Lecture Room A, F building, Physics Dept. - via Valerio, 2 – Trieste

On thermal transport in crystals.



The microscopic and atomistic theories of thermal transport have an illustrious history, whose foundations are set on the pioneering contributions from scientists such as Fourier, Maxwell, Boltzmann, Peierls and many others. Nowadays, their studies still play a fundamental role in our understanding of heat propagation inside a material. However, the race towards the miniaturization of circuits requires the development of new materials of microscopic sizes. When a device reaches the micrometer scale - or smaller - the properties of thermal transport change dramatically and new behaviors emerge, often absent in the bulk counterpart. Because of these new unexpected issues, the study of heat dynamics has lately grabbed considerable interest

from the scientific community, since we must understand these new phenomena in order to ensure more technological developments and the continuation of Moore's law.



In this colloquium I will present some studies on the anomalous behaviors of thermal transport in crystals. In particular, I will discuss 2D materials, such as graphene, showing why they have some of the largest known values of thermal conductivity, the failure of Fourier's law and second sound, that is, the propagation of heat waves.

Organizzazione a cura di: M. Peressi, E. Milotti, E. Vesselli

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Everyone interested in the topic is welcome to attend

Informazioni: seminari@ts.infn.it