



UNIVERSITÀ  
DEGLI STUDI  
DI PALERMO



## Phonon Hydrodynamics in Solids and Superfluid PhHydro2024

Aula Capitò - Engineering Department  
Viale delle Scienze, Building 7, Palermo  
4-th - 5-th July 2024

### 4-th July 2024

**9:00-9:45 Registration**

**9:45-10:00. Opening**

10:00-10:30 **David Jou**, *Sixty years of phonon hydrodynamics*

10:30-11:00 **Vito Antonio Cimmelli**, *Higher-grade elastic solids with heat conduction and viscosity*

### **11:00-11:30 Coffe break**

11:30-12:00 **Marco La Mantia**, *Large-scale behaviour of starting vortices in superfluid helium-4*

12:00-12:30 **Vittorio Romano**, *Wigner equations for phonon transport and quantum heat flux*

12:30-13:00 **Dario Ballarini**, *Dynamics of Quantum Vortices in Exciton-Polariton Superfluids*

### **13:00-15:00 Lunch**

15:00-15:30 **Davide Donadio**, *Non-Fourier Heat Transport in Nanostructures*

15:30-16:00 **Peter Van**, *Constructed evolution: Extended Thermodynamics and Internal Variables for heat conduction*

### **16:00-16:30 Coffee break**

16:30-17:00 **Giovanni Nastasi**, *A kinetic approach to study the thermal effects in monolayer graphene simulated by a deterministic method*

17:00-17:30 **Patrizia Rogolino**, *Analysis of nonlinear generalizations of the Maxwell-Cattaneo equation in heat pulse propagation*

17:30-18:00 **Carmelo Munafò**, *Analysis of the whirling heat current density in the Guyer-Krumhansl equation*

**18:00** Visit to the "Museum of Engines and Mechanisms", Università di Palermo

**20:00 Social dinner**

Restaurant **Eremiti**, Vicolo S. Mercurio, 26 (close to Hotel Camplus)



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9:00 - 9:30 **Daniele La Pegna**, *Microstructure-induced finite speed heat propagation in polarizable ceramics*

9:30 - 10:00 **Xavier Alvarez**, *Hydrodynamic experimental observations in bulk semiconductors*

10:00 - 10:30 **Liliana Restuccia**, *Internal tensorial variables and heat transport equation with inertial, thermal viscosity and vorticity terms*

10:30 - 11:00 **Antonio Sellitto**, *Phonon-boundary scatterings and boundary conditions: Application to the heat transfer in thin nano-wires*

### **11:00 - 11:30 Coffe break**

11:30 - 12:00 **Giovanni Mascali**, *How embedding nanoparticles affects semiconductor thermal conductivity*

12:00 - 12:30 **Maria Di Domenico**, *Wave propagation at nano-scale in coupled transport phenomena: Application to thermoelectricity*

12:30 - 13:00 **Saluto Lidia**, *Phonon hydrodynamics of short channels in superfluids and solids*

### **13:30 Closing**

\* **Book of abstract is available online on the webpage:**

<https://phhydro2024.unipa.it/program/>