



UNIVERSITÀ DI PAVIA
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Avviso di Seminario

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**THERMODYNAMICS OF PRECISION IN OPEN
QUANTUM SYSTEMS: MY PAST AND ONGOING
SCIENTIFIC JOURNEY**

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Ore 16, aula 102

Abstract: In this talk I will describe my past, present and prospective research in the relatively newborn, and highly interdisciplinary, field of Quantum Thermodynamics. I will start by giving a bird's eye overview of the main results that I have obtained in the past few years that range from open quantum systems to quantum information, from thermoelectric devices to single photons, all broadly aimed at characterising the impact of quantum mechanics onto the dynamics of energy and other related observable quantities.

I will then zoom in and present recent results obtained within the newborn, and rapidly growing, field of Thermodynamics of Precision. This area tackles the problem of identifying the minimum cost, in terms of thermodynamic resources such as heat and work, needed to achieve a desired precision during a generic operation done on a quantum system. Here I will present both theoretical results that provide this ultimate cost for genuinely quantum close-to-equilibrium processes and a trapped-ion experiment proving their measurability.