

Seminari di Matematica

Nell'ambito delle attività seminariali del Dipartimento di Matematica,
su proposta del Dott. Fabio Deelan. Cunden

Il Dott. Jakub Czartowski
(Nanyang Technological University, Singapore)
terrà presso il Dipartimento di Matematica
dell'Università degli Studi di Bari Aldo Moro,
la seguente conferenza

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Local Thermal Operations and Classical Communication

Martedì 28 ottobre 2025, alle ore 16:00 in aula XIII

Abstract

In quantum thermodynamics, understanding the interplay between locality, thermal constraints, and communication remains an open challenge. In this manuscript, we introduce Local Thermal Operations and Classical Communication (LTOCC), a novel operational framework that unifies the distant laboratories paradigm with thermodynamic restrictions, defining the fundamental limits on transformations between spatially separated systems. We establish a hierarchy of LTOCC protocols, demonstrating inclusion relations between different levels and revealing their deep connection to semilocal thermal operations. To formalize this framework, we develop thermal tensors and bithermal tensors, extending tristochastic tensors to thermodynamic settings and providing new mathematical tools for constrained quantum processes. Furthermore, we explore the role of LTOCC in approximating logical gates such as CNOT and SWAP and investigate its potential to generate correlations between distant systems. The talk is based on arXiv: 2410.14550

La S.V. è cordialmente invitata a partecipare.

Bari, 23.10.2025

Prof.ssa Anna Maria Candela

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