Mathematisches Kolloquium

Grundlagen der Resourcentheorien

Sprecher: Prof. Dr. Martin Plenio, Universität Ulm

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Quantum information theory has learnt to recognise a wide variety of physical properties as resources that allow for the solution of tasks that cannot be achieved without these resources. In recent years this has led to the development of the general theory of quantum resources which include quantum correlation, a.k.a. entanglement, as the most well-known example but extends well beyond to encompass, amongst others, the theory of classical and quantum thermodynamics. In this colloquium I will attempt to achieve the seemingly impossible and explain in the short time that is available the basic principles of resource theories and hint at their connections to matrix analysis, the theory of (completely) positive operators, semidefinite programming and statistical hypothesis testing (or a subset thereof) to give you a flavour of mathematics that we quantum information theorist have come to appreciate as being useful and that we are, in fact, enjoying to use.

Der Vortrag ist für ein breites Publikum geeignet