



Physikalisches Kolloquium
Einladung

Physics Colloquium
Invitation

Monday, 20 January 2020

Lecture Hall N24/H13, 16:15

Coffee and cookies will be served in front of the lecture hall from 16:00

Quantum resources and how to use them

Prof. Gerardo Adesso

University of Nottingham



The quirky features of the quantum realm have puzzled scientists for a century. Microscopic particles can be in superpositions of two states at once -- say heads and tails -- and share entanglement, a correlation that defies their separation in space and time. Efforts in unmasking and controlling these and other signature traits of quantum mechanics triggered a technological overhaul currently rivalling last century's industrial revolutions. This talk will explore the boundaries of the quantum world and investigate the operational significance of its most elusive manifestations, adopting the guiding formalism of resource theories. We will show in particular that every (convex) quantum resource yields an advantage in a channel discrimination task, enabling a strictly greater success probability than what is achievable by any state without the given resource. This may be seen to provide a universal framework to define and quantify "quantum supremacy" in practical applications.



Entanglement

by Pamela Ott (1999, 58x71cm, acrylic)

Host: Prof. Dr. Martin Plenio, Institute of Theoretical Physics

Organisation: Prof. Dr. Fedor Jelezko, Institute of Quantum Optics, fedor.jelezko@uni-ulm.de, +49-731-50-23751