



CRC 1227
Designed Quantum States of Matter



GUEST LECTURE

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(Guest of Prof. Klemens Hammerer and Dr. Naceur Gaaloul)

Leibniz Universität Hannover
DQ-mat Colloquium
06 May 2021, 3.00 pm
(via Zoom-Meeting)

"Many-body nonlocality as a resource for quantum-enhanced metrology"

In this talk I will argue that the strongest quantum correlation, manifested by a many-body nonlocality, is a resource for ultra-precise metrology. I will show that the sensitivity of a quantum sensor can be expressed in terms of many-body correlation functions (such that witness the nonlocality) of all orders. I will illustrate this general result with some prominent examples, such as a collection of spins forming an Ising chain or a gas of ultra-cold bosons in any two-mode configuration.

All DQ-mat members and all interested are cordially invited to attend.