



universität
uulm

Physikalisches Kolloquium
Einladung

Physics Colloquium
Invitation


Monday, 10 June 2024

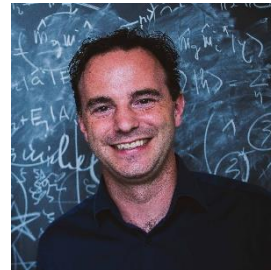
BE AWARE - ROOM CHANGE - Lecture Hall **O25/H2**, at 16:15
Coffee and cookies will be served in front of the lecture hall from 16:00

Quantum sources of gravity: the next frontier of macroscopic quantum physics

Prof. Dr. rer. nat. Markus Aspelmeyer

Faculty of Physics, University of Vienna
Institute of Quantum Optics and Quantum Information (IQOQI), Austrian Academy of Sciences

 <https://physik.univie.ac.at/forschung/professorinnen/prof-detailansicht/user/aspelmm6/inum/1173/backpid/96312/>



No experiment today provides evidence that gravity requires a quantum description. The growing ability to achieve quantum optical control over massive solid-state objects may change that situation -- by enabling experiments that directly probe the phenomenology of quantum states of gravitational source masses. This can lead to experimental outcomes that are inconsistent with the predictions of a purely classical field theory of gravity. Such 'Quantum Cavendish' experiments will rely on delocalized motional quantum states of sufficiently massive objects and gravity experiments on the micrometer scale. I review the current status in the lab and the challenges to be overcome for future experiments.



Host: Prof. Benjamin Stickler, Institute of Complex Quantum Systems

Organisation: Prof. Dr. Jens Michaelis, Institute of Biophysics, jens.michaelis@uni-ulm.de, +49-731-50-23050