

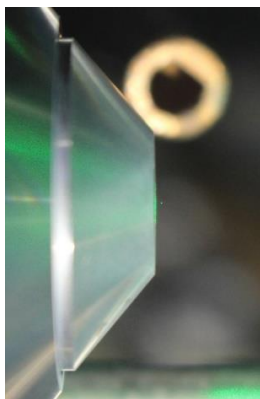
Physikalisches Kolloquium
Einladung**Physics Colloquium**
Invitation**Monday, 07 July 2025**

Lecture Hall N24/H13, at 16:15

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

**Diamonds are for everything: quantum gravity,
fusion power, space exploration and finding cancer****Professor Dr. Gavin Morley**
Department of Physics, University of Warwick,
UK <https://warwick.ac.uk/fac/sci/physics/staff/academic/gmorley/>

Diamonds containing nitrogen-vacancy centres are famous among physicists (and especially in Ulm) because of their use in quantum technologies. In my lab we have two such uses: the first is that we levitate one-micron-sized diamonds in vacuum because we want to get them into a quantum superposition of being in two places at once. This could eventually let us do an experiment to test if gravity is quantum. The other thing we build is sensitive diamond magnetometers that have a sensor head on the end of an optical fibre. We want to use these for real-world applications such as finding where cancer has spread to by looking for magnetic tracer fluids with an endoscopic probe. Other uses could include detecting where the plasma is in a future tokamak fusion power plant so as to keep it stable, and looking for life on faraway planets.



A nanodiamond
levitating in vacuum



An endoscopic magnetic-field sensor
for finding cancer

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

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