

Allgemeines Physikalisches Kolloquium

Donnerstag, 23.07.26 – 16 Uhr c.t.

IG1 – HS 2 / Wilhelm-Klemm-Str. 10

Kolloquiums-Kaffee ab 16 Uhr vor dem Hörsaal

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Applied Quantum Technologies: NV Centers, Diamond Platforms, and Mobile Quantum Computers in a Systems Context

The presentation bridges the gap between theoretical considerations and concrete industrial applications. To begin with, point function analysis is briefly outlined as a motivational statement to highlight the theoretical background of interest in quantum technologies: properties are transferred from the particle to space, so that physical relationships can be described in the limiting case with only a single particle; in this context, the Dirac equation and spatial symmetries are briefly touched upon.

The focus then shifts to selected industrial developments: Elmos's QRNG based on in-chip photoemission, diamond-based NV center technologies, SaxonQ's mobile room-temperature quantum computer, and robust NV-based quantum sensors for harsh environments. Finally, the QKD detector developed in the MIQUE project – featuring SPAD architecture and a polarization filter array – will be presented; this marks the transition to secure quantum cryptographic communication and underscores the systemic nature of these quantum technologies in an industrial setting.