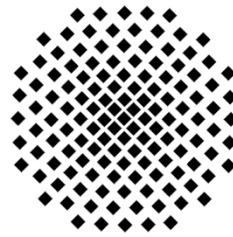


# Stuttgarter Physikalisches Kolloquium

Fachbereich Physik, Universität Stuttgart  
Max-Planck-Institut für Festkörperforschung  
Max-Planck-Institut für Intelligente Systeme

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Telefon: 0711 - 685-65111



Dienstag, 31. Oktober 2023

16:15 Uhr

V57.02

Universität Stuttgart, Pfaffenwaldring 57, 70569 Stuttgart-Vaihingen

Gastgeber: Harald Gießen, Universität Stuttgart, Telefon: 0711 - 685-65111

## Quantum-Enhanced Interferometry hunting the Dark Universe

**Hartmut Grote**  
*Cardiff University*

### Abstract

**The technology of gravitational-wave detectors and how it can be (ab)used illuminating other mysteries in fundamental physics**

Laser interferometry has revolutionized astronomy by introducing a new sense in the observation of the universe. We can now hear the ripples of space-time: gravitational waves. I will present key technologies behind these feats, namely ultra-precise lasers, squeezed light, low-loss optics, vibration isolation, and feedback control. I will further give a taste of how all these marvelous tools can be used to shed light on other mysteries of the universe: dark matter and the question of whether space-time is quantized at the smallest level.