Fakultät für Physik
Gravitationsphysik
1090 WIEN, BOLTZMANNGASSE 5

universität wien

E I N L A D U N G

im Rahmen Literaturseminars

zum Vortrag

von

Dennis Rätzel

(Berlin)

über

„Testing the gravity-quantum interface with optomechanics and quantum memories“

Abstract:

It has become one of the major endeavors in physics to understand the interplay between two of our most successful theories, quantum mechanics and general relativity.
These efforts have to be guided by experiments and observations at the interface of the two theories. In this talk, I will present two specific examples of experimental proposals:
a) A potential route to obtain evidence for quantized gravity by employing gravitationally coupled quantum optomechanical sensors [1].
b) An investigation of the effect of gravitational time dilation on photonic states stored in quantum memories [2].
I will also discuss the prospects to perform the corresponding experiments with near-future technology.

[1] Plato, A. D. K., Rätzel, D., & Wan, C. (2022). Enhanced Gravitational Entanglement in Modulated Optomechanics. arXiv:2209.12656.
[2] Barzel, R., Gündoğan, M., Krutzik, M., Rätzel, D., & Lämmerzahl, C. (2022). Gravitationally induced entanglement dynamics of photon pairs and quantum memories. arXiv:2209.02099

Zeit: Donnerstag, **04.05.2023**, **15.30 h**
Ort: via ZOOM - Meeting ID: 654 003 6841 Passcode: Gs4brS
https://univienna.zoom.us/j/6540036841?pwd=SytyVkZJZzNyRG9lMm13ejlHeHRRUT09

gez.: P. Chrusciel, D. Fajman