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Einladung zum Vortrag

Enhancing microscopy using cavities and wave-front shaping

von

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Ort: **Christian-Doppler-Hörsaal**
9. Boltzmanngasse 5, 3. Stock

Abstract:

Optical phase contrast microscopy and cryo-electron microscopy are widely used in the study of cells and proteins. In both techniques, a specimen imparts a phase shift on the probe, which can be measured using various interferometric techniques. After a discussion of the limits of phase microscopy, I will demonstrate how wave-front shaping can enable phase contrast imaging with optimized sensitivity all across the field of view 1, and how multi-passing probe particles through a sample enables high sensitivity / low damage imaging 2. The latter could potentially allow for cryo-electron microscopy with unprecedented resolution 3.

1. Juffmann, T., Sommer, A. de los R. & Gigan, S. Local Optimization of Wave-fronts for high sensitivity PHase Imaging (LowPhi). (2018).
2. Juffmann, T., Klopfer, B. B., Frankort, T. L. I., Haslinger, P. & Kasevich, M. A. Multi-pass microscopy. Nat. Commun. 7, 12858 (2016).
3. Juffmann, T. et al. Multi-pass transmission electron microscopy. Sci. Rep. 7, 1699 (2017).