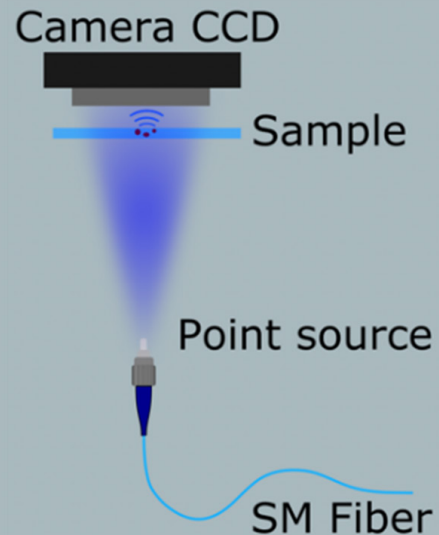


LENSLESS DIGITAL HOLOGRAPHIC MICROSCOPY



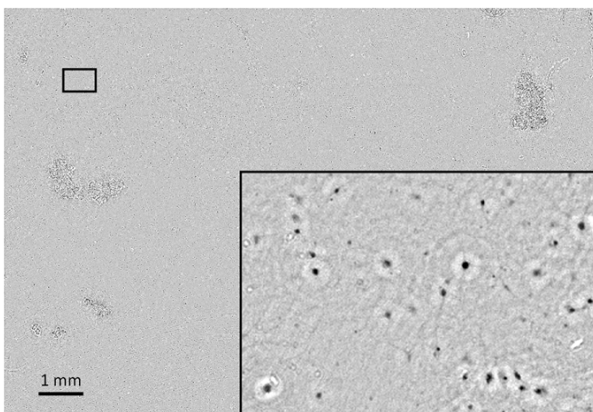
DESCRIPTION:

Lensless digital holographic microscopy LDHM is a technique using a simple setup consisting of a light source and camera, while examined samples are placed between them. LDHM provides outstandingly large field of view FOV (easily up to more than hundred square millimeters), determined mainly by the camera size and the resolution of around pixel width. This technique also enables quantitative phase contrast imaging, thus is poised to investigate transparent samples without any chemical staining nor photodamage. It means that the transparent sample can be reconstructed with high contrast in a label-free manner. The setup simplicity makes this technique low cost and easy-to-use, not only for staff trained in microscopy, but also non-experts.

APPLICATIONS:

- Cell culture time-lapse imaging
- Investigating cell cycle and interplay
- Automated diagnostics
- Imaging dynamic samples
- 4D dynamic tracking of technical (microbeads, colloids) and biological (spermatozoa) samples

Full FOV (around 116 mm²) phase reconstruction of astrocyte sample investigated using LDHM system



ADVANTAGES:

- Large field of view
- High resolution
- Imaging in high or very low light intensity regimes depending on experimental requirements
- Simple setup, easy adjustable and low-cost system
- High contrast and low out-of-focus noise imaging in multi-wavelength setups

READINESS:

- Fully operational laboratory setup
- Fully capable reconstruction software

OPPORTUNITIES:

- Research cooperation
- Training in operation of lensless digital holographic microscopy systems
- Installation of lensless digital holographic microscope on-site

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