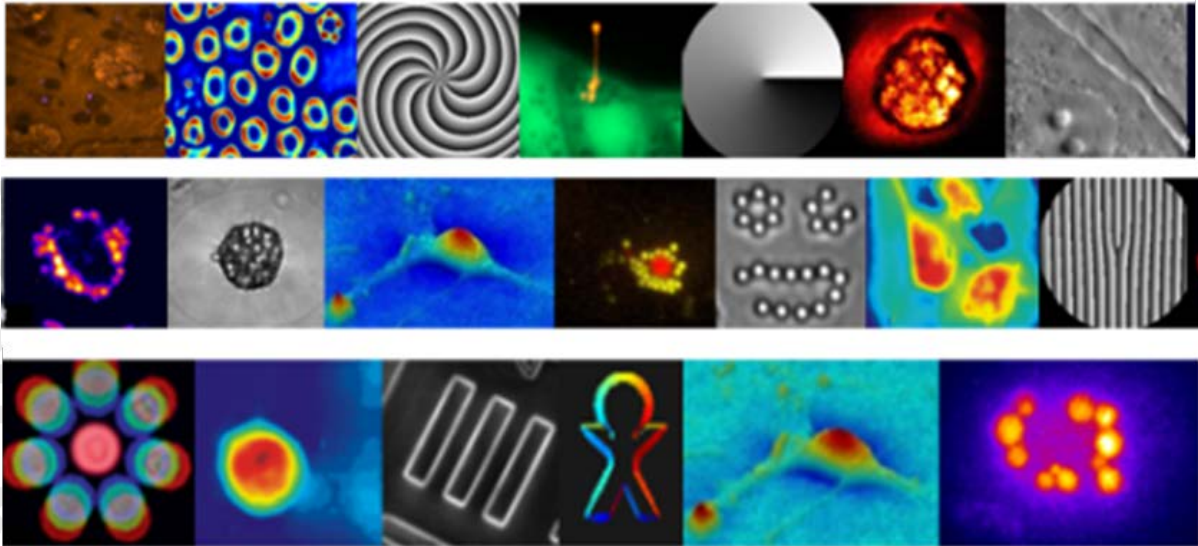


# PHYSIKALISCHES KOLLOQUIUM

AM 18. APRIL 2016 UM 17 UHR C.T.

IM GROßEN HÖRSAAL



## SHAPING UP OPTICAL IMAGING AND TRAPPING WITH SPATIAL LIGHT MODULATORS

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Optical wavefront shaping by pre-calculated patterns on Spatial Light Modulators (SLMs) is a powerful tool for customizing optical imaging and trapping: Holographic optical tweezers controlled by SLMs have become an indispensable tool in many areas of cell biology because of their enormous flexibility. But SLMs may also be integrated into optical imaging systems, using them, for instance, as a programmable Fourier-filter. Thus one can emulate classic techniques for contrast enhancement, for instance dark-field microscopy, Zernike phase contrast, or spiral phase contrast, and toggle between these modalities by simply replacing the image displayed on the screen. A further major advantage provided by SLMs is the possibility to multiplex images, for example to combine images from different depths of the sample or for different settings of imaging parameters in one recorded image, implementing e.g. quantitative phase microscopy.