Lights, camera, action! – The sequel

Holographic optical tweezers combined with optical microscopy and single particle tracking allow us to reach into the microscopic world, see it, manipulate it, and characterize its behavior. Applying these techniques to model driven colloidal suspensions, to biomimetic gels, and to living matter allows us to study the material properties of these systems as well as their dynamics and fluctuations. In the talk I will give two examples of such studies, the first studying the material properties of the plasma membrane of cells, and the second focusing on stochastic thermodynamics of systems far from thermal equilibrium.