

# Multi-parameter Imaging based on Digital Holography

## Abstract

We have been developing techniques of multi-parameter imaging based on digital holography. Multi-parameter imaging is defined as the simultaneous detection of many physical parameters such as amplitude, phase, spectral, and polarization as well as sound, stress/strain, and absorption. For biological applications, simultaneous three-dimensional imaging of phase and fluorescence is very effective to understand the physical phenomenon of the cell activity. Three-dimensional sound imaging is also very attractive to visualize the propagation without contact to the object. We will present the principles of the measurement techniques and the experimental results.