

SHIMURA LAB.

[Manipulation of light and matter via their interaction]

Centre for Photonics Electronics Convergence

<http://qopt.iis.u-tokyo.ac.jp>

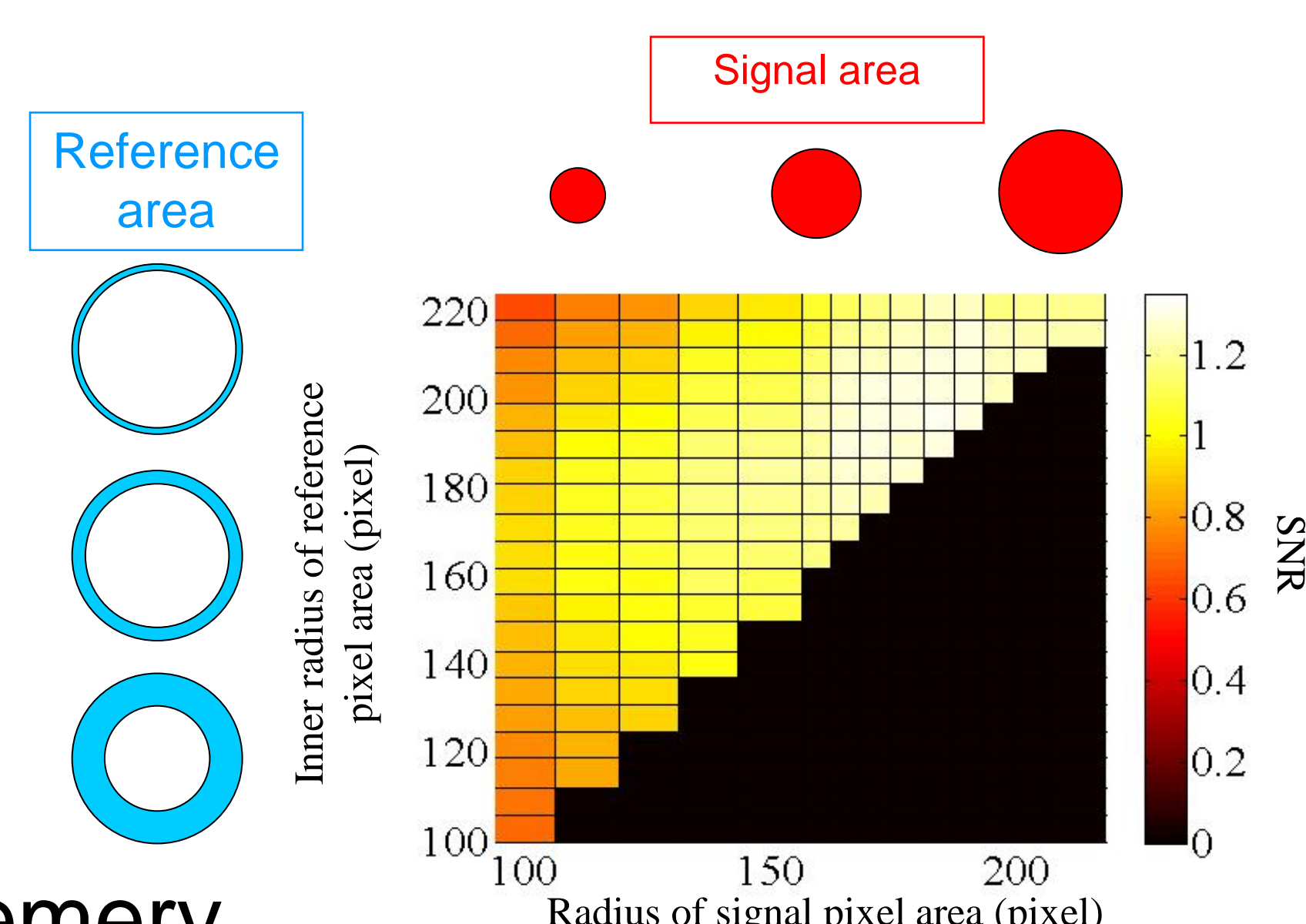
Applied Nonlinear Optics

Department of Applied Physics

Holographic Memory

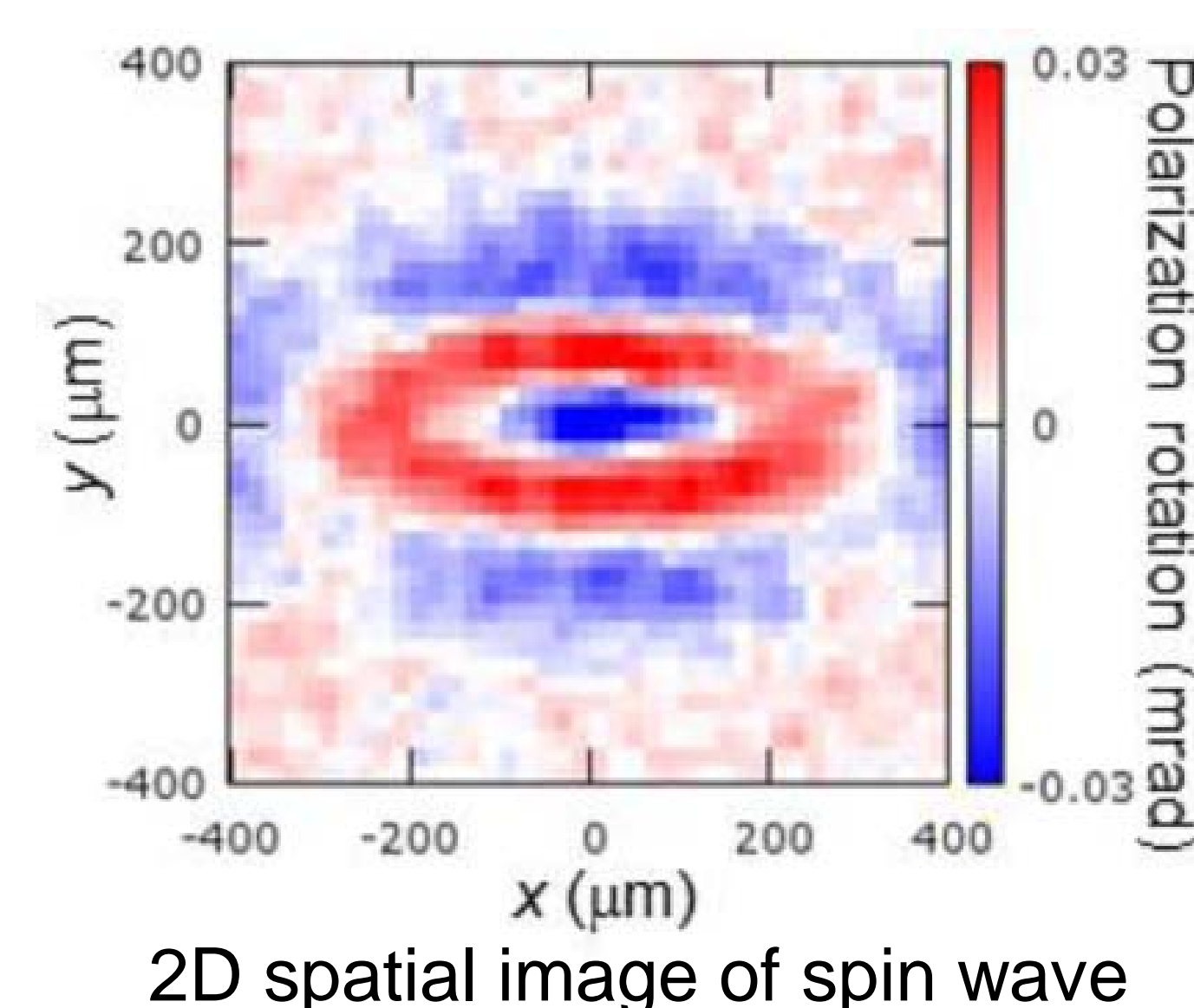
Holographic technology allows multiplex recording and parallel access different from conventional optical memory. Our aim is to develop next generation holographic memory with large capacity and high transfer rate. We research the following projects in both experimental and simulation methods.

- Development of vector wave holographic memory
- Development of time sequential signal holographic memory
- Simulation modeling of photopolymerization reaction for development of recording material



Optics of spin wave

Spin wave is propagating disturbance in magnetically ordered materials. We research dynamics of spin wave -reflection, refraction, scattering, diffraction- by optical method. Spin precession locally induced by fs-light pulses in magnetic materials propagates as spin wave. Spin waves generated in this way are measured spatiotemporally using pump-probe method and optical imaging technique.



Control of optical wave by nanostructures

We investigate controlling optical properties of nanostructures with tailored plasmonic modes. Furthermore, we also focus on optical force exerted on nanostructures by the plasmonic control and aim for developing a novel method to manipulate various motions of nanomachines with its plasmonic force.

