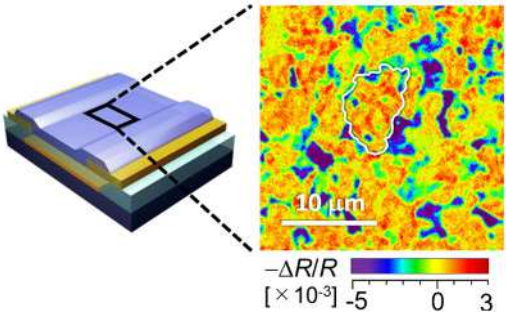
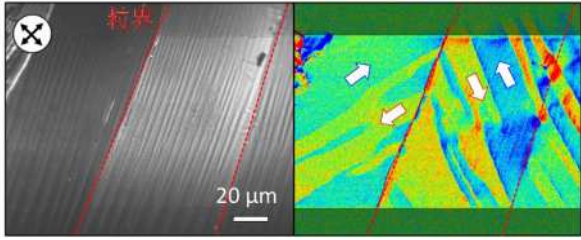
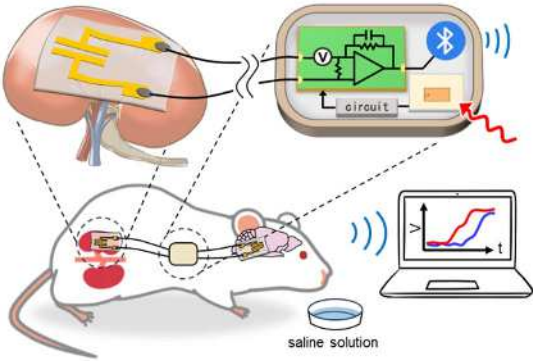


Name MATSUOKA Satoshi	Job Title Associate Professor	Area of Expertise Organic Electronics, Optical Physics
1. Main Research Topics Organic electronics and optical devices composed of functional organic molecules, such as flexible electronics and optical communication devices utilizing the flexibility of organic molecular crystals and the nonlinear optical response of the anisotropic molecular structure, respectively, have been developed for the next-generation information and communication technology. I investigate for improving the device performance by visualizing the spatial distribution of charge carriers and electric polarizations by means of the optical imaging technique. ① Visualization of charge carriers in Organic FETs I developed an optical gate modulation imaging technique which allows to visualize the charge carrier distribution in the organic semiconductor layer of organic field effect transistors. By means of the technique, I successfully observed the inhomogeneous carrier distribution in a polycrystalline organic semiconductor layer and revealed the anomalous electro-optic response in a single-crystal semiconductor layer.  ② Visualization of electric polarizations using nonlinear optical responses and development of optical devices I observed the spatial distribution of electric polarizations in organic ferroelectric materials and electro-optic polymers by means of the field modulation imaging technique utilizing the nonlinear optical response induced by the broken inversion symmetry of organic molecules. It was demonstrated that the micrometer scale ferroelectric domains and the reversal mechanism in ferroelectric films. The polarization orientation in the electro-optic polymer waveguide of the optical modulator can be evaluated by the technique, which encourages technological innovation with improving the device performance.  ③ Development of implantable sodium ion sensor device I investigated implantable sodium ion sensor devices for understanding the mechanism of the phenomena caused by excessive sodium intake in the body on biological functions. Flexible polymer sensors and wireless communication devices are utilized to measure the dynamics of living organisms without interference of natural movements. 		
2. Keywords Organic field effect transistor(FET), Organic ferroelectric, Electro-optic polymer, Optical modulator		
3. Remarks and Websites researchmap: https://researchmap.jp/matsuoka-s_1122		