

SHIRAKASHI LAB.

Looking at Water Molecular Dynamics in Materials



Department of Mechanical and Biofunctional Systems

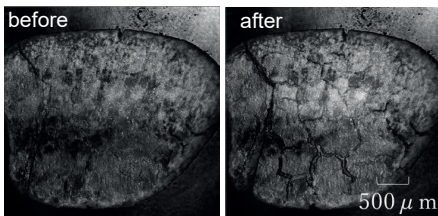
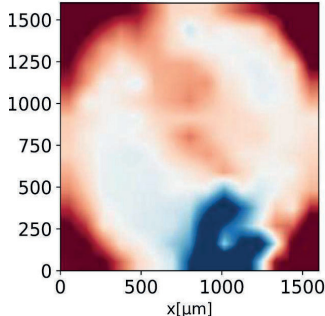
Phase change Thermal Engineering

Department of Mechanical Engineering, Graduate School of Engineering

<https://www.iis.u-tokyo.ac.jp/~aa21150/>

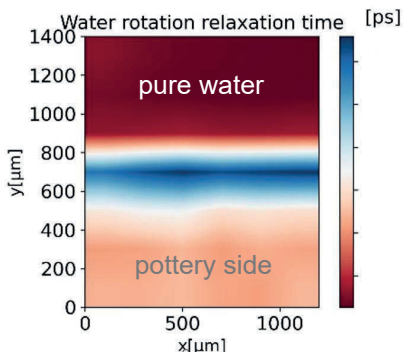
Water molecules in water-retaining materials, *e.g.* foods and biological matters, behave unlike bulk water because of the interaction with material molecules. Dielectric and/or infrared spectroscopy allow measuring the rotational relaxation time and the hydrogen bonding strength of water that are associated with water diffusion coefficient and water activity.

Water rotation relaxation time [ps]

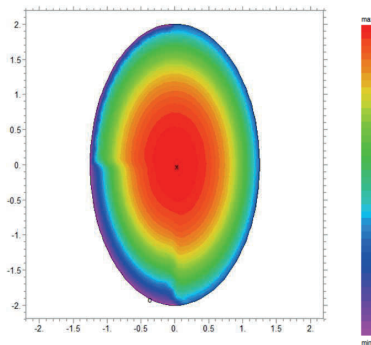


© Micrographs of a sake rice (Yamada-Nishiki) immersed in water

© Water rotational relaxation time in a Medaka fish egg



© Water rotational relaxation time near the surface of pottery with glaze



© Water content in rice after immersing and taking out from water

