INDUSTRIAL


"Tanpopo" - *Dandelion*

Recently, SPring-8 has had a good track record in developing industrial applications in various fields, such as electronics, materials, energy, chemical and environment-related companies, that is, in 2008, nearly 300 research proposals were accepted from industries and SPring-8 was used by nearly 190 companies. This means that the utilization of SPring-8 has already become common in a wide range of industrial fields. The most important factor contributing to our success in attracting a wide range of industries is the implementation of various utilization propulsion programs at public beamlines, which have been continuously improved. From 2007, JASRI implemented a new utilization propulsion program at public beamlines: the Priority Research Proposal (priority field: industrial application). In this program, for example, applications can be submitted 4 times a year for the use of the three public beamlines dedicated to industrial research in order to match research development cycles.

In the present issue, eight topics chosen to represent the outstanding work carried out in Industrial Applications. Although most users of industrial applications had previously belonged to the field of electronics, many researchers from other industrial fields, such as those involving metals, ceramics, concrete materials, fuel cells, hydrogen storage materials, polymers, cosmetics, hair care, and foods are now joining SPring-8. The topical experiments introduced here were performed using the following techniques: X-ray reflectivity (XRR; BL46XU and BL24XU),

APPLICATIONS

grazing-incidence X-ray diffraction (GIXD; BL46XU, BL19B2, and BL13XU), powder X-ray diffraction (BL19B2), microbeam X-ray diffraction (BL40XU), dispersive XAFS (BL14B1 and BL28B2), and nano-XAS photoemission electron microscopy (PEEM; BL17SU).

Two excellent studies from next-generation Si LSI fields were selected this year as research frontiers of 2009: the depth distribution of acid generators in chemically amplified resists and the strain effect on the oxidation kinetics at the interface between dense and thin interfacial transition layers using XRR. Also, three studies from electronic device fields were selected. GIXD was applied to understand the alignment mechanism of liquid crystal on alignment film and the organic semiconducting ultrathin film crystal structure. The voltage-induced nonvolatile resistance switching mechanism was investigated by nano-XAS PEEM. The number of studies in the catalysis field is now increasing because of growing concern on global environmental problems. One of the topics is a catalytic reaction study on Pd particles using dispersive XAFS. The last two topics are related to food, clothing and housing: the formation mechanism of tobermorite under a hydrothermal reaction atmosphere, investigated using *in situ* X-ray diffraction (XRD) and tooth enamel microstructural evaluation using microbeam XRD.

Yoshio Watanabe


"Mokusyungiku" - *Marguerite*


"Dokudami" - *Houttuynia*