Special Feature: Materials Analysis

Overview

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Evaluation to determine the desirable and undesirable properties of materials has become a necessity in recent materials developing processes. Recent developments in science have provided new analytical techniques and equipment that require new skills. As such, the role of materials analysis has become increasingly significant for manufacturing development.

Large national facilities such as SPring-8 or J-PARC have provided a significant advantage, where synchrotron radiation, neutrons, or muons are applicable for materials analysis. Such investigation cannot be performed in the typical laboratories found in companies or universities. Therefore, it is important that these national facilities be utilized to accomplish comprehensive materials analyses, in addition to relying on traditional analytical methods, such as X-ray diffraction and infrared spectroscopy.

The following papers are examples of our investigations. The first two papers include results from the observation of ion movements in crystals that were conducted at large national facilities. The final two papers are focused on the interfaces between metals and inorganic materials. Both subjects are typically understood to be difficult analyses, and it is considered that these papers may provide some assistance for your own investigations.