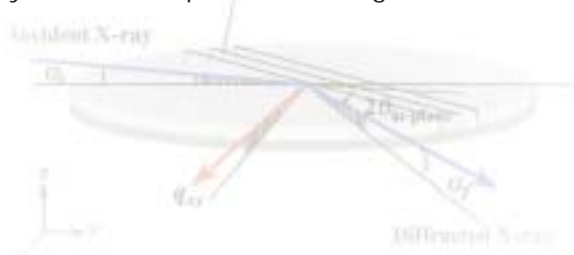


CHEMICAL SCIENCE

In Chemical Science, the subjects are distributed into a vast area of science. In particular, it is closely related to Materials Science. Chemical Science covers the most of the types of experiments having been carried out at SPring-8. One can easily surmise by glancing at the titles of the articles appearing in the contents page of Chemical Science. The first distinguishing feature of Chemical Science compared with Materials Science and the other categories is that its interest is focused on the observation and study of the change in the state of substances and the variation of substances. This is directly related to witnessing chemical reactions and *in situ* state analysis of materials. The second is the development of spectroscopic technique which enables time-resolved and/or space-resolved measurements. On these bases, eleven studies are highlighted as subjects in the Chemical Science category from among the experiments performed during the period of 2002B and 2003A at almost all of the beamlines installed at SPring-8.

In situ observation of dynamic change of materials is reported in the 1st, 2nd and 3rd, and 4th articles employing X-ray absorption, X-ray diffraction, and photoemission phenomena, respectively. The 5th and 6th articles focus on the techniques used for studying the static change of materials by nuclear resonant vibrational spectroscopy (NRVS) and total-reflection XAFS, elucidating the significant structural difference between the states of the substance. The 7th article introduces the first successful data acquisition of soft X-ray CD spectra of L- and D- racemic amino acids. Detailed analyses with theoretical interpretation of the X-ray absorption edge and Auger process are reported in articles no. 8 and 9, and 10 and 11, respectively.

There is an increase in the number of articles in this section this year, suggesting the diversification of studies due to the incessant search for new knowledge based on the stable supply of abundant photons with high resolution in energy and space achieved at SPring-8.



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