

DIFFRACTION & SCATTERING

In the first year of utilization, most of the beam time had been consumed by test or preliminary experiments. Nevertheless, there have been many varieties of user activities in the field of X-ray diffraction and scattering, which covers structural analysis, high-resolution powder diffraction, phase transition, diffuse scattering, magnetic scattering, surface scattering, high-pressure experiments, nuclear spectroscopy and non-linear optics.

In particular, the activities in high-pressure experiment and nuclear spectroscopy have preceded among them. In high-pressure experiments, two projects deal with earth science and two others involve structural change through phase transition under high-pressure. In nuclear spectroscopy experiments, nuclear resonant scattering was applied to the analysis of atomic motions and fluctuations of magnetic moment in materials. In addition, the basic technique of conversion electron Mössbauer spectroscopy was developed.

Another topic that attracted attention was an electron-level structural analysis of fullerene compounds related to superconductivity. A fundamental study of X-ray parametric down conversion was also a significant work. These studies are expected to be developed further.

The scientific and engineering activities pursued at SPring-8 have clearly demonstrated that the facility is opening the door to a completely new world of diffraction and scattering.

Makoto Sakata