

X-ray Structure Analysis of Host-Guest Organic MicroCrystals

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This is the first time that we apply the Vacuum Camera of BL02B1 to the structural study, the characteristics of the experimental system was examined.

The incident beam energy was set to 15 keV from Si(111), and 20, 30, and 50 keV from Si(311).

In the photograph taken at the beam energy of 50 keV, there found several sharp crescent shaped peaks. After the several trials, the origin of these irregular peaks is thought to be the scattering from the vicinity of the Be window attached at the front of the experimental hatch, and the energy of the incident beam is so strong that the scattered radiation penetrate the Al cylinder of the Vacuum Camera. It was impossible to cut off the scattered beam by beam path or slits, the lead plates were located in front of the cylinder of the Vacuum Camera.

In spite of the above treatment, the shadow of the goniometer head was appeared at the upper stream side on the Imaging Plate of the next exposure. The reason of this shadow is considered as follows; direct beam is scattered by the beam stopper in the experimental hatch, and a part of them go back into the cylinder of the Vacuum Camera.

It was concluded that the whole of the

cylinder of the Vacuum Camera must be covered with the lead especially when the high energy incident beam is used. Moreover, the care for these scattering is necessary when using not only the Vacuum Camera but also the other BL02B1 systems such as Weissenberg camera or four-circle diffractometer.

The effect of the evacuation was evaluated. The measurements were carried out under the ring current of about 17 mA and the exposure time of 80 min. The count of the background intensity under the vacuum condition was 100 order, on the other hand, that of under the atmospheric condition was 103 order, so the evacuation is quite useful for the integration intensity measurements of the microcrystals.

Integrated intensity of the host-guest organic microcrystal, $C_{80}H_{57}O_{10}N_1$, was measured. The size of the crystal was $200 \times 50 \times 20 \mu m^3$. 20 keV of SR beam from Si(311) was employed, the ring current was changed from 15.6 to 10.0 mA. Each photograph was taken by rotating the crystal by 6° twenty times at $6^\circ/min$. The number of iteration was sufficient to record the significant integrated intensity of this size of organic crystal on the Imaging Plate in this condition.