Contribution ID: 111

Type: oral

Application of the SOPHIAS Detector to Synchrotron Radiation X-ray Experiments

Thursday, 25 May 2017 17:06 (18 minutes)

The structural analysis for functional materials is one of studies which are recently very interested in application of synchrotron radiation science. With a low-emittance synchrotron ring, higher performance is required for an X-ray area detector used in experiments. A charge integrating type detector SOPHIAS, which was designed fitting to XFEL experiments, was developed by RIKEN based on Silicon-On-Insulator technology. The SOPHIAS detector has a 2157 times 891 pixel array consisted of 30 micro meter square pixels. The SOPHIAS is powerful tool in X-ray structural analysis because of its property of high definition and high dynamic range. The application of the SOPHIAS to synchrotron radiation experiments was started at Photon Factory, KEK (KEK/PF). Focusing to small angle X-ray scattering (SAXS) for block copolymers and X-ray diffraction for ferroelectrics, synchrotron radiation X-ray experiments were conducted by use of the SOPHIAS at KEK/PF. In the measurement of the SAXS for a poly(epsiron-caprolactone)-polybutadiene diblock copolymer, the SAXS pattern has complicated peak structure originated in Frank-Kasper sigma phase so that the fine pixel of the SOPHIAS was very important to resolve the peaks.

We will report the results of the experiments using the SOPHIAS.

Primary author: Dr HASHIMOTO, Ryo (KEK)

Co-authors: Dr TAKAGI, Hideaki (KEK); Prof. IGARASHI, Noriyuki (KEK); Prof. KUMAI, Reiji (KEK); Prof. KISHIMOTO, Shunji (KEK); Dr HATSUI, Takaki (RIKEN); Dr KUDO, Togo (RIKEN)

Presenter: Dr HASHIMOTO, Ryo (KEK)

Session Classification: R4-Photon detectors(6)

Track Classification: Photon detectors