

Development of Integrated Software for Beamline Control for Photoemission Beamlines at UVSOR-II

Masahiro Sakai,¹ Takahiro Ito,² Shin-ichi Kimura^{1,3}

¹*UVSOR Facility, Institute for Molecular Science, Okazaki 444-8585, Japan*

²*Graduate School of Engineering, Nagoya University, Nagoya 464-8603, Japan*

³*School of Physical Sciences, The Graduate University for Advanced Studies, Okazaki 444-8585, Japan*

We developed integrated software for synchronized motion of a beamline from the undulator light source to the photoemission end station. UVSOR-II, Institute for Molecular Science, has two photoemission beamlines with undulator light sources. One of the beamlines, BL7B, is dedicated for a high-resolution angle-resolved photoemission and equips an APPLE-II-type undulator (NEOMAX Co.), a Wadsworth-type 10-m normal-incidence monochromator (TOYAMA Co.), a 200-mm radius hemispherical photoelectron analyzer (MB Scientific AB, A-1), and a 6-axes manipulator with liquid-helium-cooled cryostat (R-dec Co., i-GONIO). [1] Another beamline, BL5U, also equips the same photoelectron analyzer. [2] In both beamlines, since the control PCs are spatially separated, the operability of the beamline has not satisfied. Then we developed a new multi-client server/client system using the TCP/IP protocol by the LabVIEW software. At present, absorption measurements where the undulator and the monochromator are controlled can be performed. Since the photoelectron analyzer and the manipulator are also controlled by the LabVIEW software, a constant initial state (CIS) measurement and a Fermi surface mapping will be automatically realized in the near future. In this paper, we report the present progress in the development.

- [1] S. Kimura, T. Ito, E. Nakamura, M. Hosaka, M. Katoh, *AIP Conf. Proc.* **879**, 527 (2007).
- [2] T. Ito, S. Kimura, H.J. Im, E. Nakamura, M. Sakai, T. Horigome, K. Soda, T. Takeuchi, *AIP Conf. Proc.* **879**, 587 (2007).