Preface

This Activity Report covers scientific and technological activities carried out using the UVSOR-III Synchrotron in FY2018 (April 2018-March 2019). We present scientific examples of how the users study at the UVSOR Synchrotron Facility.

The present UVSOR-III Synchrotron is one of the most advanced low-energy SR facilities of the 3rd generation SR in the world and is now one of the critical resources in doing molecular science. The UVSOR-III Synchrotron has a small electron storage ring but has powerful 6 undulator beamlines (3 VUV and 3 in-vacuum soft X-ray undulators) with 8 dipole beamlines. We never stop improving and upgrading our micro- and nano-scale photoabsorption and photoelectron emission approaches and in situ/operando measurements in the VUV and soft X-ray regions, based on our strategic international collaboration program in molecular science. We are grateful to all the people who use our facility and support our efforts.

UVSOR operates for 40 weeks/year (~ 2,200 h user time), accepts ~ 230 proposals, and ~ 1,300 researchers meaning ca. 100 people/beamline/year and ca. 30 people/week. Most users stay for one or two weeks for doing the experiment. To continue high-level achievements in science and technology at the UVSOR-III Synchrotron, we in-house staff are always working hard to maintain and improve our

high-performance accelerators and beamlines. The FY2019 would be still challenging year for the UVSOR Synchrotron Facility, because of reducing the number of the staff. Prof. Kato who had greatly contributed to develop the UVSOR-III Synchrotron has moved to HiSOR (Hiroshima University). After the two-major upgrade from UVSOR-I to UVSOR-III Synchrotron with his great efforts, now we aim continuously for serving the high-quality light sources and for developing the stability in use. On the experimental side, technology development will not stop, hence we will make a progress on the imaging-related techniques to encourage the advanced molecular science. We have started to construct the new endstation by using effectively two undulator beamlines, BL6U and BL7U. The new apparatus is based on the momentum-resolved photoelectron emission microscope, however the novel function will be uniquely added to our endstation to realize a leading position by having instrumental extensibility in future development over 10 years. The advanced SR-related instrument will offer opportunities to reveal the nature of properties and functions of them. The details on the apparatus will be informing via international workshop related.

We look forward to receiving your feedback and suggestions on the continuing evolution of the UVSOR Synchrotron Facility. And we hope many users will perform excellent work by fully utilizing the UVSOR-III Synchrotron as a unique international hub for the SR research in advanced molecular science.

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