

## The 39th CSJ Award for Technical Achievements Given to Mr. Eiken Nakamura

Mr. Eiken Nakamura, Facility Chief Engineer in UVSOR Synchrotron Facility, has been awarded the 39th Chemical Society of Japan (CSJ) Award for Technical Achievements for “Development of UVSOR Beamlines and Their Experimental Apparatuses for Promoting Molecular Science”. The award is given by CSJ to persons who have made significant contributions to the improvement/development of devices/instruments/plants for chemistry and the chemical industry with their special skills.

Arriving at UVSOR Synchrotron Facility in 1984 (soon after the first synchrotron-light creation (1983)), Mr. Nakamura started his career in the construction, maintenance, and modification of beamlines and end stations. He made great contributions to the development of various monochromators such as a grasshopper monochromator and a plane-grating monochromator, and also of experimental apparatuses. Among a large number of contributions, some highlights can be found in the development of new beamlines: a far-infrared beamline (BL6B, 1985), which is the first one in the world, a device/instrument calibration beamline (BL5B, 1988), which has been active for a long time, and an undulator beamline (BL6U, 2003), where a state-of-the-art momentum microscope system (UVSOR MM) is currently being developed (see the next page). Another remarkable contribution is to the modification of the soft-X-ray beamline BL4B to utilize the circularly polarized light component of bending radiation, which was successful with Mr. Nakamura’s invention of L-shaped water-cooling four-quadrant slit system.

As above, Mr. Nakamura played an important role in keeping the UVSOR facility on the cutting edge of science and technology. Many UVSOR users have benefited from this effort and have also been supported by him in various ways to carry out experiments.



**Double award celebration!!**  
The CSJ award is one of the awards.



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## The NAGAI Foundation for Science & Technology Encouragement Award Given to Dr. Fumihiko Matsui

Dr. Fumihiko Matsui, Senior Researcher in UVSOR Synchrotron Facility, has been awarded the NAGAI Foundation for Science & Technology Encouragement Award for “Development of micro area analysis of surfaces of materials with unique electronic properties by the momentum microscope”. The award is given by the NAGAI Foundation for Science & Technology to researchers who made significant achievements in the materials processing industry and related research fields.

Since taking up his post in April, 2018, Dr. Matsui has been conducting the development of a unique state-of-the-art surface and materials analysis system at the soft-X-ray beamline BL6U of the UVSOR-III synchrotron, introducing and advancing a momentum microscope (MM) in collaboration with SPECS GmbH. The system aims at extracting accurate and sufficient information on atomic and electronic structure and spin distribution carried by photoelectrons, in order to promote detailed atomic-level investigation to solve, ultimately, global energy and environmental issues.

The award encourages the development of this promising system, which is somewhat slowly but steadily in progress in the coronavirus pandemic. The development is performed in three steps: Step 1, already completed, was to install and optimize a single HDA (Hemispherical Deflection Analyzer) system, in which satisfactory performance was achieved. Step 2, currently being progressed, is to upgrade the system with twin HDAs and to construct a branch beamline at BL7U, which allows normal light incidence on sample dually. Step 3 is to introduce a spin detector to the twin-HDA system, for which a novel technique for resolving 3D spin polarization was invented. With these steps, the UVSOR MM system would become the first and only experimental station that can determine the true nature of materials in view of electron’s energy, momentum, spin, and space.

