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Tetsuya Ishikawa

SACLA: SPring-8 Angstrom Compact free electron LAser

Tetsuya Ishikawa, a graduate of the University of Tokyo, is Director of the RIKEN Harima Institute, which operates both SPring-8 and SACLA. He started his research career at the Photon Factory, KEK, in 1982; moved to the University of Tokyo as an Associate Professor of Applied Physics in 1989; and then moved to RIKEN as a Chief Scientist in charge of SPring-8 beamline construction in 1995. He has been the Director of the RIKEN SPring-8 Center since 2006, and the Director of the RIKEN Harima Institute since 2010. He served as the Project Leader for the compact-XFEL construction, which is now known as SACLA and is open to public users. He was awarded the "Medal with Purple Ribbon" from the Japanese Emperor in 2012 for his contributions to SPring-8. He is the author/co-author of over 400 publications and a Fellow of SPIE.

The present status and future perspective of the SPring-8 Angstrom Compact free electron LAser (SACLA) will be discussed. SACLA is the world's second hard x-ray free-electron laser (XFEL), following the Linac Coherent Light Source in the U.S. After the first observation of self-amplified spontaneous emission (SASE) lasing at 0.12 nm in June 2011, accelerator tuning was advanced to produce SASE lasing down to 0.063 nm. The facility was opened for public use beginning in March 2012. This talk introduces the details of the facilities including the linac, undulators, beamlines, monitor/diagnostic systems, end stations, detectors, and data-acquisition systems. Early results include (i) damage-free protein crystallography, (ii) laser-pump and XFEL-coherent diffractive imaging probe measurement, (iii) non-linear x-ray effects, and (iv) applications of the 50-nm-focused XFEL. Collaborative uses between SPring-8 and SACLA, and between K-Computer and SACLA will be mentioned.

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