585th ASRC Seminar

Date: 14:30 ～ 15:30, 10 March

Location: Meeting Room 103, ASRC Building

Speaker: Prof. Shigemi Sasaki
(Hiroshima Synchrotron Radiation Center, Hiroshima University)

Title: Experimental Evidences of Light's Orbital Angular Momentum carried by Helical Undulator Radiation Harmonics

The phenomenon of higher harmonic radiation from a helical undulator carrying orbital angular momentum (OAM) attracts a great deal of attention because this novel property may be used as a new probe for synchrotron radiation science that would be performed in a diffraction limited light source facility such as NSLS-II and MAX IV.

Although a diffraction limited VUV and x-ray sources do not yet exist, the 750 MeV UVSOR-III is already a diffraction limited light source in the UV region. In this ring, a tandem-aligned double-APPLE undulator system similar to that in BESSY-II is installed for FEL and coherent light source experiments. Using this set-up, we observed spiral interference patterns between two different harmonic radiations with a scanning fiber multi-channel spectrometer and a CCD camera placed at the end of BL1U beamline. By these measurements, various interference patterns such as single, double, and triple spirals were observed which concur with the theoretical prediction for every mode in the right or left circular polarization.

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Akinari Yokoya (81-3829)
Advanced Science Research Center