

Virtual Hard X-Ray Collaboration Seminar Series

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Title: Status of undulator development in SACLA: issues, countermeasures, and future upgrade

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Abstract:

In SACLA, 18 & 21 in-vacuum undulators (IVUs) are in operation in the hard x-ray beamlines BL2 & BL3, and 3 IVUs are in operation in the EUV beamline BL1, whose specifications are almost identical: magnetic period of 18 mm, total magnetic length of 5 m, and minimum gap of around 3 mm. Since the 1st lasing in 2011, we have encountered a number of unpredicted problems in the operation of these IVUs. Although most of them have been fixed or not so serious, we are currently struggling against a critical issue in BL1 IVUs: a large demagnetization leading to a significant FEL gain reduction. This is mainly attributable to an "unoptimized lattice function" of the undulator line in BL1. In this talk, we report on the current status of SACLA IVUs focusing on the above issues and their countermeasures. In addition, we present R&D activities regarding the undulator development not only for SACLA but also for the future upgrade of SPring-8.