European XFEL

European XFEL Science Seminar

Tuesday, 4th December 2018, 13:00 (Coffee & Sandwiches at 12:30)
Campus Schenefeld, XHQ, room E1.173

Efim Gluskin

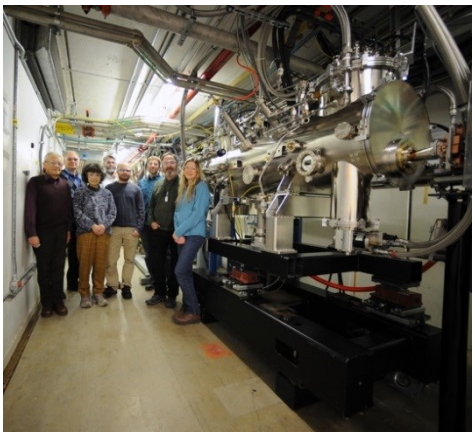
Advanced Photon Source, Argonne National Laboratory

Status of superconducting undulator developments at the Advanced Photon Source

Superconducting undulators (SCUs) have been under active development at the Advanced Photon Source (APS) in the last decade. Several SCUs, planar and helical, have been installed at the APS storage ring and are currently in operation. All these devices demonstrated high performance and reliability levels.

Currently all operational SCUs at the APS are NbTi- based devices. Recently, the new development of Nb_3Sn undulators began. Several short, 10-period prototypes were designed, built, and tested. Their performance exceeded expectations and very closely approached the performance of a short wire sample. Based on the prototype design, the APS will build two new 1.2-m-long Nb_3Sn undulators and install them in-line at Sector 1 of the APS storage ring.

The in-line double-undulator design is planned to be tested as a module prototype for future XFELs. The module will be equipped with quads, a phase shifter, and BPMs. Also, an advanced in-situ alignment system will be incorporated. The module will be tested first at the APS SCU magnet measurement laboratory. After that it will be considered for installation at the hard x-ray beamline of LCLS-II.



Host: Joachim Pflüger