

WK2: Workshop on Past, Present, and Future of Insertion Devices at the APS: A Tribute to Efim Gluskin, Emil Trakhtenberg, and Isaac Vasserman

Organizers: Dennis M. Mills, Yury Ivanyushenkov, and E. Ercan Alp (Advanced Photon Source, Argonne National Laboratory)

Undulators were the key components of the third-generation synchrotron radiation sources built in early 1990s. Their successful development and implementation led to the installation of fully energy-tunable devices and later polarization-switchable devices that revolutionized x-ray scattering, imaging, and spectroscopy methods. The exceptional ability in the building of and precise magnetic tuning of the undulators led the way towards the free electron lasers of today. Building novel vacuum chambers and developing critical technologies for manufacturing, machining, magnetic tuning, and installation were all parts of the successful integration of undulators into APS' modern storage ring.

The current innovations in superconducting undulators, revolving devices with different periods, and fast polarization switching abilities will determine the success of the APS Upgrade Project, and many similar projects around the world.

This workshop will celebrate past successes, take a critical look at the future developments that are in progress all around the globe, and recognize the unique and invaluable contributions of three key individuals who have worked at the APS: Efim Gluskin, Emil Trakhtenberg, and Isaac Vasserman.

Session Chair: David Moncton

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| 8:30—8:50 | Stephen Streiffer (Advanced Photon Source) <i>Welcome Remarks</i> |
| 8:50—9:00 | David Moncton (Massachusetts Institute of Technology) |
| 9:00—9:30 | Herman Winick, (SLAC National Accelerator Laboratory, Emeritus) <i>Experience with Wigglers and Undulators at Harvard in the 1960s and Stanford in the 1970s</i> |
| 9:30—10:00 | Joachim Pflüger (European XFEL) <i>Undulator Technology for X-ray Free Electron Laser</i> |
| 10:00—10:30 | Kwang-je Kim (Argonne National Laboratory, University of Chicago) <i>Not to be Taken Lightly</i> |
| 10:30—10:45 | Break |

Session Chair: Ercan Alp

- 10:45—11:15 Tetsuya Ishikawa (SPring-8)
Insertion devices at SPring-8
- 11:15—11:45 Johannes Bahrtdt (BESSY-II)
New Developments in Cryogenic Permanent Magnet Undulator Technology
- 11:45 —12:15 (video) Nikolay Vinokurov (Budker Institute of Nuclear Physics)
Undulator Development in Budker INP
- 12:15—1:30 Lunch

Session chair: Liz Moog

- 1:30—2:00 (video) John Galayda (SLAC National Accelerator Laboratory)
FEL Undulators at BNL, ANL and SLAC
- 2:00—2:30 (video) Toshiya Tanabe (NSLS-II, Brookhaven National Laboratory)
Evolution of Insertion Devices at NSLS and NSLS-II y
- 2:30—3:00 Shigemi Sasaki (Hiroshima University, Emeritus; Shanghai Tech University)
APPLE U, Quasi-Periodic U, LCLS U, Knot-APPLE U, What's Next?
- 3:00—3:15 Break

Session Chair: Dennis Mills

- 3:15—3:45 Yury Ivanyushenkov (Advanced Photon Source)
Development of Superconducting Undulators at the APS
- 3:45—4:15 Emil Trakhtenberg (Advanced Photon Source)
25+ Years with APS/ANL
- 4:15—4:45 Efim Gluskin (Advanced Photon Source)
- 4:45—5:00 Dennis Mills, Closing Remarks (Advanced Photon Source)
Closing Remarks