

Recent Observations on the APS Storage Ring Using Synchrotron Radiation Monitors*,
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N. SERENO, B.X. YANG, ANL/APS - The Advanced Photon Source (APS) 7-GeV storage ring and our synchrotron radiation diagnostics have matured noticeably in the past year. The monitors now include information from two separate bending-magnet sources (one at a dispersive point in the lattice) as well as a 198-period diagnostics undulator. Both optical synchrotron radiation (OSR) imaging and x-ray synchrotron radiation (XSR) imaging were done. On-line data logging via EPICS of the observed transverse beam size and position provides information on the beam emittance (7 ± 1 nm rad) in both the standard lattice and a low Beta-y lattice, vertical coupling (2 to 4%), beam divergence (3 to 7 microradians), and beam stability (x -rms jitter < 10 microns). In addition, measurements of beam bunch length (~ 35 ps) and even effects of the moon's gravity on the beam orbit circumference have been done. The latter effect has been reported earlier using a laser polarimeter at LEP and using rf BPMs at APS. Examples of these results will be reported as space permits.

* Work supported by the U.S. Department of Energy, Office of Basic Energy Sciences, under Contract No. W-31-109-ENG-38.