

Abstract Submitted
for the MAR07 Meeting of
The American Physical Society

Picosecond X-ray Pulse Generation at the Advanced Photon Source¹ DENNIS MILLS, Argonne National Laboratory — Synchrotron radiation from storage ring-based facilities typically has a pulse length of many tens to many hundreds of picoseconds. In an effort to improve the temporal resolution of the study of dynamic and transient properties, the APS has been exploring the possibilities of producing short (a few picosecond) pulses through transverse deflection of the particle beam via radio frequency cavities installed in straight sections of the storage ring. These cavities produce a longitudinally coordinated vertical momentum to particle bunch that, when passed through an insertion device, then emits radiation with similar properties. Slits can then be used to time slice the beam or crystal optics can be employed to temporally compress the chirped radiation beam. Several approaches for the implementation of this capability at the APS will be discussed along with the expected performance.

¹Work supported by U.S. Department of Energy, Office of Basic Energy Sciences, under Contract No. DE-AC02-06CH11357.

Dennis Mills
Argonne National Laboratory

Date submitted: 02 Dec 2006

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