

FASPAX - an Integrating Burst-mode Detector for Diffraction-limited Storage Rings

R. Bradford

Advanced Photon Source, Argonne National Laboratory

The FASPAX (Fermi-Argonne Semiconductor Pixelated Array X-ray detector) is an integrating area detector designed to meet the needs of a diffraction limited light source. Designed by the Fermilab ASIC (application specific integrated circuit) Group, the readout ASIC employs a novel charge splitting integrator with self-selecting three gain ranges, permitting wide dynamic range - from single photons to 10^5 photons per pixel per single x-ray pulse. The detector will record a burst of images at a frame rate of 13 MHz, chosen to keep pace with the proposed timing mode of the new APS storage ring. This talk will provide an overview of the FASPAX detector, and updates on the development of major detector components, including the ASIC, sensors, and data acquisition system.