

Virtual Hard X-Ray Collaboration Seminar Series

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Title:

CITIUS: a 17400 frames/s X-ray imaging detector with a linear response over 600 Mcps/pixel

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Abstract:

At the synchrotron radiation facilities, recent advances in accelerator technologies together with novel insertion devices and optical systems deliver more and more intense x-rays onto X-ray imaging detectors. As such, state-of-art photon-counting detectors are challenged due to their limited count rate of around 1-10 Mcps/pixel imposed by the pile-up phenomena; i.e., photons arrive more frequently than the circuit response time. The CITIUS detector (Charge Integration Type Imaging Unit with high-Speed extended-dynamic-range) has been developed so to overcome this count rate limitation significantly [1]. The CITIUS is designed to operate at the frame rate 17.4 kframes/s, which makes a linear response over 600 Mcps/pixel at 12 keV while keeping its single-photon sensitivity. In the presentation, the development status together with the deployment results will be presented.