

## **HIGH-PERFORMANCE SILICON STRIP DETECTOR FOR IN-HOUSE XRD SYSTEM**

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X-ray diffraction measurement can be speeded up significantly by using a position sensitive detector (PSD). This skill was proposed about 30 years ago and became commercially available around year of 2000. A PSD can be a position sensitive proportional counter (PSPC), a charge-coupled device (CCD), a photo diode array or a silicon strip detector (SSD). A SSD was initially developed as a beam tracker for high-energy physics and turned to an X-ray detector later. Its unique characteristics, such as single photon counting capability, high spatial resolution, good energy resolution, room temperature operation, etc., are ideal for the use with an in-house X-ray Diffraction (XRD) system and established from a few vendors. However, the performance of SSD is strongly rely on its read-out electronics, especially a read-out ASIC (Application Specific Integrated Circuit). A high-performance read-out ASIC for a silicon strip detector is developed as the result of collaboration with Rigaku Corporation and AGH University of Science and Technology. The read-out ASIC is compiled to a silicon strip detector, namely "D/teX Ultra". Some performance of in-house XRD system with D/teX Ultra will be presented.

[Information Page]

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