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High Resolution X-ray Imaging Using Monolithic Silicon Pixel Sensor

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A high resolution X-ray imaging system based on ALPIDE, a CMOS monolithic active pixel sensor (MAPS), is presented. ALPIDE is a 15 mm × 30 mm large MAPS with 512 × 1024 27 μm × 29 μm pixels that are read out in a binary hit/no-hit fashion, and with the control and readout system, it can detect the max particle rate of 100 MHz / cm², and achieve the spatial resolution of around 5 μm. The imaging system counts the incident X-ray photon hits on every ALPIDE pixel per exposure to produce a gray scale image. Imaging results of grating patterns and insect specimens are presented.

Description

X-ray imaging

Institute

USTC

Speaker

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Country

China

Minioral

Yes

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