Contribution ID: **39** Type: **POSTER**

Development of X-ray detector using optical switching readout for high-speed imaging

Thursday 6 September 2012 15:10 (1 hour)

We demonstrate an x-ray detector with dual amorphous-Selenium (a-Se) layer using optical switching readout for high-speed x-ray imaging. The x-ray detector consists of a negative voltage bias electrode, a thick a-Se layer for photoelectric conversion of x-ray photons, an As2Se3 layer as an electron-trapping layer for accumulating a latent image, a thin a-Se layer for optical readout, an opaque-, and transparent-electrodes formed alternately, and a plasma display panel (PDP) optical source for optical switching readout. The readout PDP source with peak wavelength of blue 470nm was operated to line by line with electrical scanning for high-speed x-ray imaging. The developed x-ray detector has 512 x 512 with 200um pixel.

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Session Classification: Poster session

Track Classification: X-ray imaging applications - Medicine