

Flat x-ray detectors and their applications

Tuesday 4 September 2012 10:20 (30 minutes)

The applications of x-ray imaging in the medical field are manifold and range from computer tomography (CT), radiography, angiography to mammography. Depending on the application, the x-ray systems support diagnostic and/or interventional procedures and generate 2D (projection) or 3D (volumetric) data sets. The performance requirements for the different application can vary strongly with respect to pixel size, frame rates, x-ray flux and detector size.

Healthcare trends such as the change of the demographic structure, outcome orientation of procedures or higher efficiency influence the design of new systems and their components such as the x-ray detector. High dose efficiency, support of new applications and cost efficiency reflect these demands.

Today's predominant x-ray detector technologies are integrating detectors and are based on scintillators, in particular CsI, and photodiodes of amorphous silicon (radiography, angiography) or crystalline silicon (CT) or on the direct converting material selenium (mammography).

Future developments will include the optimization of current technologies but may also bring new technologies such as CMOS and counting pixel devices in order to further increase performance characteristics or allow new applications.

Primary author: SPAHN, Martin

Presenter: SPAHN, Martin

Session Classification: Session3

Track Classification: X-ray imaging applications - Medicine