# Amorphous Silicon Flat-Panel Detectors for X-Ray Imaging

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A difficulty to make a detector in the medical use of X-rays for radiology, is the need to cover a large area, as it is still not conceivable to focus the beam coming through a patient.

The field of flat Panel X-ray detectors is relatively new but they are now available for medical imaging markets. That possibility has been progressively introduced by the developments made in flat-panel active matrix arrays for displays. These new detectors, associating either an X ray scintillator or a photoconductor and an amorphous silicon matrix, are presently in production, and will gradually replace X ray film and part of the X ray tube intensifiers.

The purpose of this talk is to give an overview of amorphous silicon X-ray imaging-based detectors. Indeed, we will describe the existing flat-panel technology and explain some basic concepts including the amorphous silicon active matrix arrays technology, the operation principles of a flat panel imager, the x-ray detection media with a comparison of indirect and direct detection techniques approaches. We will give some characteristics of existing systems, indicating the possibilities and limitations of the present solutions.