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## Active pixel sensors in nuclear medicine imaging

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Three different Active Pixel Sensors provided through the MI-3 collaboration have been tested to assess their application to Nuclear Medicine Imaging. When coupled to a phosphor such as CsI(Tl) these sensors have the potential for high resolution imaging of radiotracers such as Tc-99m. The work carried out so far shows that the noise levels in the APS sensors needs to be as low as possible so that the signal from low energy gamma rays can be detected. Although the present level of noise is relatively high (between 25 electrons and ~100 electrons per pixel) the major component is fixed pattern in nature and can be removed from images. A simple method has been developed to differentiate between fixed pattern noise and statistical noise and this has been applied to data acquired with the sensors. So far images of simple structures show the potential for this device to become part of a larger system for imaging with sub-mm spatial resolution. Such a device would be useful for imaging small tumours and heart defects using appropriate radiotracers.

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