Mid Sweden University leads development of digital color x-rays

May 23 2007

In the future doctors will be able to find more tumors at an early stage while using a smaller x-ray dose for each examination. Color x-rays offer new possibilities for medical diagnoses.

Digital color x-rays are based on the same advanced technology that is used when nuclear physicists look for new elementary particles. The great scientific challenge in constructing a color x-ray camera is to be able to shrink the large-scale detection equipment used by nuclear physicists to the microscopic format.

The readout electronics for each pixel in the camera's picture sensor must be squeezed into an area of 55 x 55 µm, and what's more be x-ray safe. The Mid Sweden University researchers have solved these design problems. Furthermore, they have shown that Medipix2 can be used to reduce the radiation dosage in dental x-rays. Industry also expects to be able to use the technology to see the consistency of materials using x-rays.

"With our digital color x-rays it will be possible to cut the radiation risk in half for x-ray examinations," says Börje Norlin.

Using advanced computer simulations of the next generation of x-ray cameras, Mid Sweden University has also developed ways to enhance the quality of color x-rays.

These cameras will have higher resolution and be able to show more

colors of higher quality.

In connection with these dissertations, CERN will be holding one of its quarterly meetings in Sundsvall, Sweden, to discuss the further development of color x-ray technology.

Source: Swedish Research Council