MARS: Colour x-rays of people

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Goal:
To produce a poster for New Zealand high schools explaining a new form of medical imaging.

Background:
The MARS team has developed an novel x-ray scanner which produces three dimensional spectroscopic x-ray images of small animals and pathology specimens. The scanner, dubbed MARS (Medipix All Resolution System), has been built by University of Canterbury physicists and engineers. The scanner uses the Medipix photon processsing x-ray detector. It is now being used by the radiology department of the University of Otago, Christchurch to establish clinical applications.

Method:
To convey the difference between traditional medical x-ray systems and spectroscopic systems we used the analogy of observing patterns in a stained glass windows using visible light. To present our initial results, MARS images are shown next to conventional non-spectroscopic CT images. Colour was chosen to display the spectroscopic nature of the MARS images.

Results:
The poster will be used for the “Medical Imaging Outreach Kit”. The kit also contains a short video on the MARS project and equipment for demonstrating a range of radiation physics.

Conclusion:
The analogy of colour is felt to be useful for for explaining spectroscopy. It is accurate as the spectroscopic information in x-rays is equivalent to colour for visible light, except in a different part of the electromagnetic spectrum. In future we will solicit feedback from high school teachers and from the outreach program's speakers to further refine our explanation of the MARS technology.