

Refraction imaging with parallel X-ray beam for medical use

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Refraction imaging was able to obtain using
third generation Synchrotron Radiation.

The goal of this study is clinical use of
phase contrast imaging.

This experiment was performed at
BL24XU. The X-ray beam was
monochromatized at 15 keV energy by
beam line monochromator. The X-ray
beam was 5X5mm² obtained by
asymmetric reflection, two times 115(+,-)
reflections from Si(001) in horizontally and
vertically. The beam was highly parallel,
divergence was 0.2 sec. The distance
between sample to detector was about 4m.
The detector was X-ray camera, X-ray film
and nuclear emulsion. Slit was used to
reduce beam noise and to get beam
uniformity. Slit was 0.6mm. Sample and
detector were moved synchronously
vertical direction at the scan speed
0.2mm/sec. Fig.1 shows absorption and
refraction image of rat. We can clearly
observe boundary structure of rat, lung and
digestive intestine in this image. Fig. 2
shows refraction image of rat.

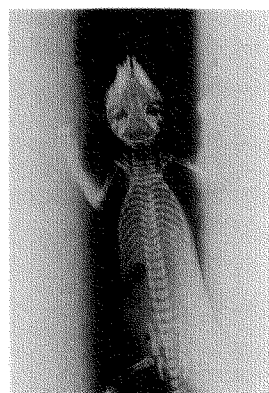


Fig.1 shows absorption and refraction
image of rat.

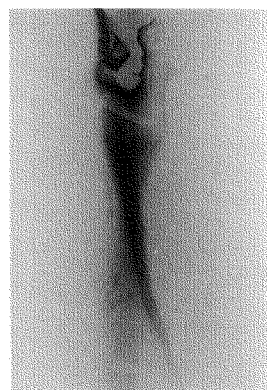


Fig. 2 shows refraction image of rat