

## 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 5X5mm<sup>2</sup> 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.

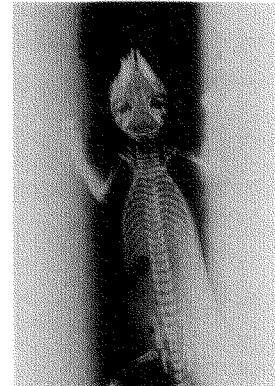


Fig.1 shows absorption and refraction image of rat.

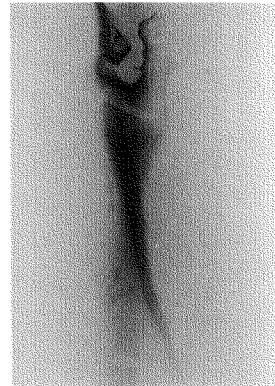


Fig. 2 shows refraction image of rat