

Fig. 1 Schematic of refraction-contrast CT imaging system using synchrotron radiation

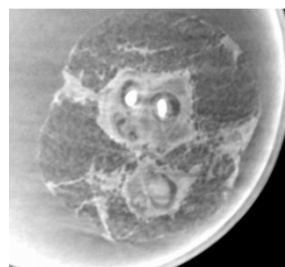


Fig. 2 Refraction CT image

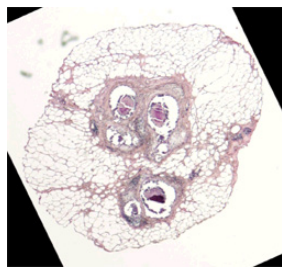


Fig. 3 Histological section of breast cancer

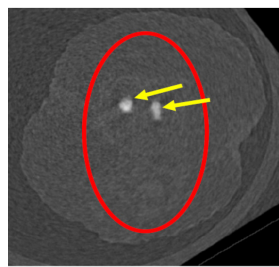


Fig. 4 Conventional CT image

### Content:

Conventional X-ray CT (Computed Tomography) cannot delineate biological soft tissues at high contrast. Use of x-ray refraction enables us to image them clearly (See and compare Figs. 2-4). The imaging concept proposes a solution to the serious social problem of increased number of breast-cancer patients. In order to establish a novel CT technique for high-precision diagnosis in breast cancer, we develop a novel imaging system to efficiently collect data as well as a novel algorithm for more reliable image reconstruction.

In addition, we in parallel develop a software system of computer assisted diagnosis (CAD) to extract cancer regions automatically from the reconstructed images and to propose useful information for diagnosis to a clinician.

Yamagata University Graduate School of Science and Engineering  
Research Interest : Medical Physics & Information Processing

E-mail : [yuasa@yz.yamagata-u.ac.jp](mailto:yuasa@yz.yamagata-u.ac.jp)

Tel : 0238-26-3324  
0238-26-3323

Fax : 0238-26-3323

