

## High spatial resolution X-ray image detectors at SPring-8

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High spatial resolution X-ray image detectors have been used at SPring-8. They are visible light conversion type and CCD-based detectors and consist of thin phosphor screen, optics (visible light conversion unit) and CCD camera. They are used for many kinds of X-ray microscope as an important device.

The advantage of this kind of detector is to be changed to another kind of detector with changing the CCD camera. That is, the characteristic of the detector almost depends on the characteristic of the CCD camera.

The highest spatial resolution of a detector is better than  $1\mu\text{m}$  (shown in the figure) with the field of view of about  $1\text{mm} \times 1\text{mm}$  while the largest field of view is  $24\text{mm} \times 16\text{mm}$  with spatial resolution of about  $12\mu\text{m}$  using high definition CCD camera ( $4000 \times 2624$  pixels).

At the conference the details of the system and some experimental results are presented.

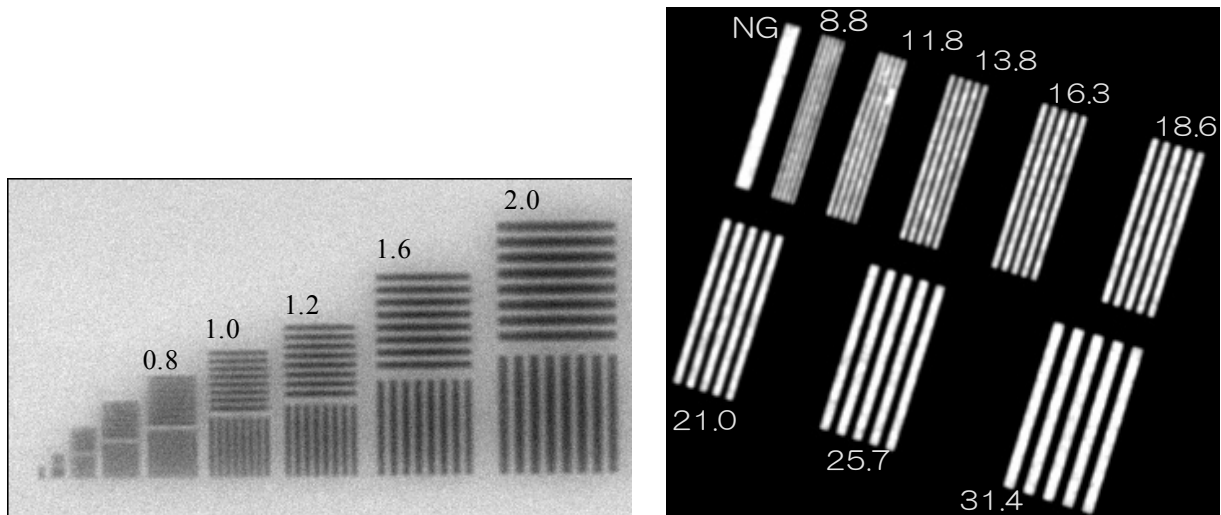


Figure. Left:  $0.5\mu\text{m}$ -thick Ta on  $\text{Si}_3\text{N}_4$  film. Numbers show period of line and space. The image was obtained by BM3 (x50) and cooled-CCD camera (C4880-10-14A) with the effective pixel size of  $0.2\mu\text{m}$ . X-ray energy was  $12\text{keV}$  and exposure time was 8sec. Right:  $23\mu\text{m}$ -thick Au on Kapton film. Numbers show line widths. The image was obtained by BM2 ( $f=24\text{mm}$ ) and cooled-CCD camera (C4880-10-14A) with the effective pixel size of  $5.83\mu\text{m}$ . X-ray energy was  $15\text{keV}$  and exposure time was 10sec.