FINE STRUCTURE OF THE THERMAL AND NON-THERMAL X-RAYS IN THE SN 1006 SHELL

A. Bamba (1), R. Yamazaki (1), M. Ueno (1), and K. Koyama (1)

(1) Department of Physics, Kyoto University (bamba@cr.scphys.kyoto-u.ac.jp/Fax: +81-75-753-3799)

The shock front of SN 1006 is the most probable acceleration site of high energy electrons (up to $\sim 100$ TeV) with the Fermi acceleration mechanism. Using the Chandra archive data, we resolve the spatial structure of the shocked region in thermal and non-thermal X-rays. The thermal X-rays have a $\sim 100''$-width shell, consistent with the Sedov solution. On the other hand, that of the non-thermal X-rays is very sharp, $\sim 20''$, or about 0.2 pc at a distance of 1.8 kpc. The scale length of the upstream edge is a few times of the gyro radius of 60 TeV electrons in 6.5 $\mu$G, whereas that of the downstream edge is roughly equal to the characteristic scale length of the gas advection.