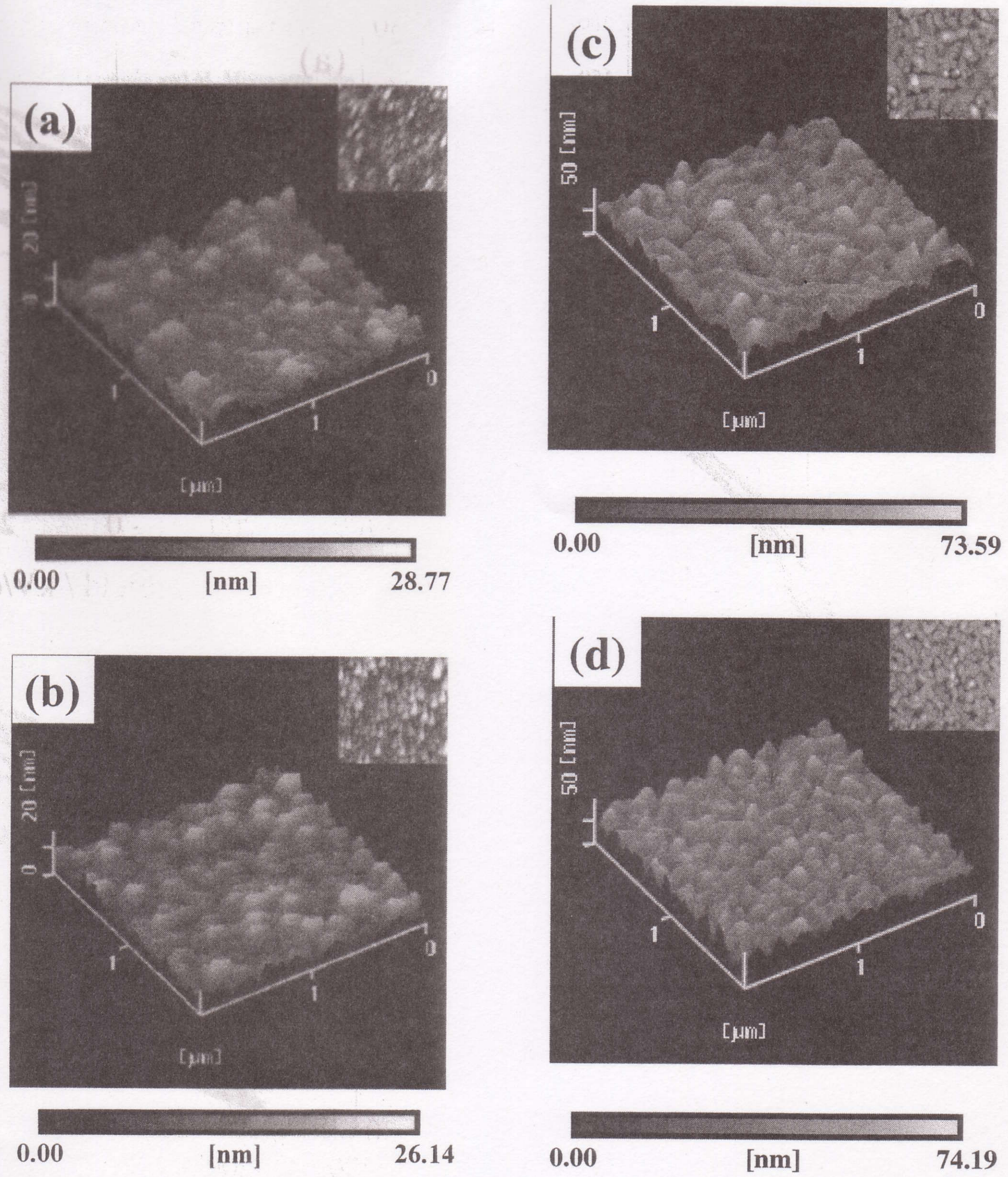

Fig. 6. AFM images of the surface of 500 and 600°C-annealed $Bi_{3.35}La_{0.75}Ti_3O_{12}$ thin films: 550°C without excimer UV irradiation (a) and with excimer UV irradiation (b), 600°C without excimer UV irradiation (c) and with excimer UV irradiation (d).

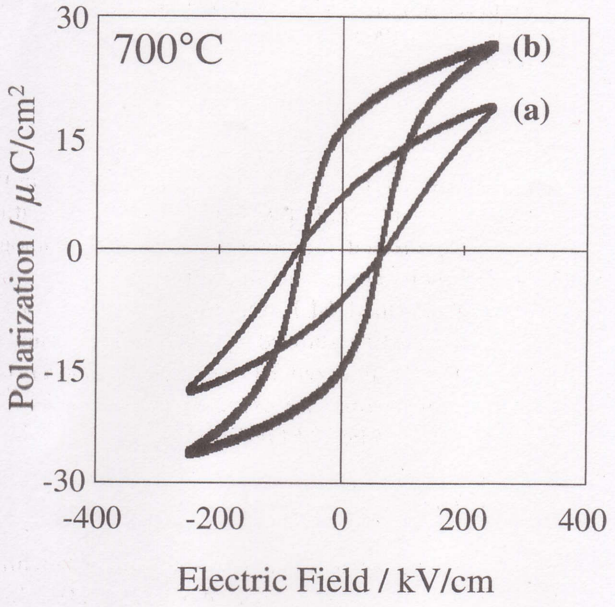

Fig. 7. *P–E* hysteresis loops of $Bi_{3.25}La_{0.75}Ti_3O_{12}$ (a) and $Bi_{3.35}La_{0.75}Ti_3O_{12}$ (b) thin films prepared at 700°C.

to be effective in improving the ferroelectric properties of the thin films.

Figure 10 shows the fatigue property of $Bi_{3.35}La_{0.75}Ti_3O_{12}$ thin films prepared at 600°C using excimer UV irradiation before and after the switching of 10^{10} cycles at a frequency of 1 MHz. Similar hysteresis loops were observed before and after the switching, indicating good fatigue endurance.

4. Conclusions

BLT thin films were synthesized by chemical solution deposition using excimer UV irradiation, and their microstructure, crystal phase and ferroelectric properties were investigated. Our results are summarized as follows:

1. Ferroelectric BLT thin films were successfully synthesized on $Pt/TiO_2/SiO_2/Si$ substrates using metal-organic precursor solutions. Homogeneous and stable BLT precursor solutions were prepared by controlling the reaction of starting metal alkoxides in 2-methoxyethanol with a key additive of acetylacetone.