

Abstract Submitted
for the MAR15 Meeting of
The American Physical Society

Improving information density in ferroelectric polymer films by using nanoimprinted gratings DANIEL E. MARTÍNEZ-TONG, Département de Physique, Faculté des Sciences, Université libre de Bruxelles (ULB), Boulevard du Triomphe, 1050 Brussels, Belgium, MICHELA SOCCIO, Dipartimento di Ingegneria Civile, Ambientale e dei Materiali, Università di Bologna, Via Terracini 28, 40131 Bologna, Italy, DANIEL R. RUEDA, AURORA NOGALES, MARI CRUZ GARCÍA-GUTIÉRREZ, TIBERIO A. EZQUERRA, Instituto de Estructura de la Materia, IEM-CSIC. Serrano 119-121, 28006 Madrid, Spain — The development of polymer non-volatile memories depends on the effective fabrication of devices with high density of information. Well-defined low aspect ratio nanogratings on thin films of poly(vinylidene fluoride–trifluoroethylene) copolymers can be fabricated by using Nanoimprint Lithography (NIL). By using these nanogratings, an improved management of writing and reading information can be reached as revealed by Piezoresponse Force Microscopy (PFM). Structural investigation by means of Grazing Incidence X-ray (GIX) scattering techniques indicates that the physical confinement generated by nanoimprint promotes the development of smaller and edge-on oriented crystals. Our results evidence that one-dimensional nanostructuring can be a straightforward approach to improve the control of the polarization in ferroelectric polymer thin films.

Ezquerra Tiberio A.
Instituto de Estructura de la Materia, IEM-CSIC.
Serrano 119-121, 28006 Madrid, Spain

Date submitted: 13 Nov 2014

Electronic form version 1.4