

Abstract Submitted
for the MAR12 Meeting of
The American Physical Society

Diblock and Triblock Copolymer Thin Films on a Substrate with Controlled Selectivity¹ YONG-BIAO YANG, JAEUP KIM, UNIST, JUNHAN CHO, Dankook University — We study the morphology developments in linear ABC triblock and also AB diblock copolymer films on neutral and selective substrates, using a self-consistent field theory (SCFT). For the ABC copolymer films, various nanopatterns with tunable square morphologies evolved due to the effects of the substrate preferable to interior (B) block. The domain patterns became diversified from those parallel to the substrate with substrate selectivity for end-block or those vertical to the substrate without substrate selectivity. Furthermore, in order to figure out an economical and efficient way to fabricate useful passive pattern transfer layers potentially applicable to microelectronic processes and ultrahigh density storage media, we scrutinized conditions for generating square symmetries using symmetric AB diblock copolymers deposited on substrates created from ABC triblock copolymer films. It was found that a thinner film with relatively weak incompatibility can produce square patterns.

¹This work was supported by the National Research Foundation of Korea(NRF) grant funded by the Korea government(MEST) (No. 2011-0027260 and 2011-0005403).

Jaeup Kim
UNIST

Date submitted: 08 Nov 2011

Electronic form version 1.4