Abstract Submitted
for the MAR12 Meeting of
The American Physical Society

**Controlling the Block Copolymer Patterns via Combining Graphoepitaxy and Surface Guidance**[1] HYUNJUNG JUNG, Korea University, SUMI LEE, EUN AE KWAK, Samsung Electronics, SANGHOON WOO, Korea University, FRANK LEIFARTH, CRAIG HAWKER, University of California, Santa Barbara, JUNE HUH, DU YEOL RYU, Yonsei University, JOONA BANG, Korea University — One of the key issues for the block copolymer patterning is controlling the pattern array. Using directed assembly of block copolymer on the chemically patterned surfaces guarantee highly uniform array or controlled non-regular array. In this system, the chemically patterned surface can induce well resisted array over arbitrary large areas. However, this method requires expensive and complicated e-beam lithography and thus is not readily applicable to mass production process. Alternatively, another method is the graphoepitaxy method. In this case, the self-assembly of block copolymer is guided by the topographical wall of lithographically pre-patterned substrates. But, it has limitation on the pitch size of wall to obtain the highly ordered patterns. In this work, we demonstrate a new type of fabrication method to achieve highly controlled and uniform block copolymer patterns. Our approach is to combine the graphoepitaxy method and hexagonally surface guiding patterns from crosslinkable block copolymers. When the lamellar forming block copolymers were prepared on hexagonal patterns, a highly aligned stripe was obtained and the alignment was significantly improved comparing to the case when no hexagonal surface patterns were used.

Hyunjung Jung
Korea University

[1]Samsung Electronics

Date submitted: 11 Nov 2011 Electronic form version 1.4