Abstract Submitted
for the MAR07 Meeting of
The American Physical Society

**Block Copolymer for Patterning Bio-molecules** DONGSEOK SHIN, Dept. of Polymer Science and Engineering, Univ. of Massachusetts, Amherst, YAO LIN, MICHAEL SCHOLLE, LIAOHAI CHEN, BRIAN KAY, LEE MAKOWSKI, Biosciences Division, Argonne National Laboratory, THOMAS RUSSELL, Dept. of Polymer Science and Engineering, Univ. of Massachusetts, Amherst — The fabrication of a well-defined pattern of bio-molecules is crucial for high throughput diagnostics and cell proliferations. Self-assembling block copolymers are novel candidates for the generation of high density patterns with nanometer scale features. Here, we have used a phage display library to select a peptide sequence that selectively binds to polystyrene. When the selected peptide sequence was incubated on a poly(styrene-b-methylmethacrylate) (P(S-b-MMA)) film, the pattern of the underlying block copolymer microphases was duplicated as a result of the selective binding of the peptide on PS. To utilize this result for the directional assembly of bio-molecules, the selected sequence was engineered into different loops of the fibronectin type III (FN3). The binding of the engineered FN3s was tested using inverted phase P(S-b- MMA), where PS formed cylinders standing normal to the surface. The affinity of engineered FN3s to the film varied depending on the position of the engineered loop.

Dongseok Shin
Dept. of Polymer Science and Engineering, Univ. of Massachusetts, Amherst

Date submitted: 20 Nov 2006 Electronic form version 1.4