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Complex Morphologies of Symmetric Diblock Copolymers under Nano-Confinement DONG MENG, YUHUA YIN, JACQUELINE ACRES, QIANG WANG, Colorado State University — We have performed parallel self-consistent field (SCF) calculations in continuum to study the self-assembled morphologies of symmetric diblock copolymers under planner and cylindrical confinement by homogeneous surface(s). The SCF equations are solved with high accuracy in real space, without *a priori* knowledge of the possible morphologies. Effects of surface preference and film thickness / pore diameter are investigated in detail. In addition to simple morphologies (i.e., surface parallel and perpendicular lamellae), complex morphologies are found in both cases and their stable regions are determined. Our SCF calculations also reveal the formation mechanism of these complex morphologies.

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