
DS 33: Plenary Talk - Caroline Ross

Time: Friday 8:30–9:15

Location: H1

Plenary Talk

DS 33.1 Fri 8:30 H1

Templated Self-assembly of Block Copolymer Films —

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The microphase separation of block copolymer films produces periodic nanoscale patterns with feature sizes of a few nm and above, and has been proposed as a method for extending microelectronic fabrication beyond the limits of optical lithography. To control the long range order of the microphase separation, and to produce patterns

with designed aperiodic features, templating strategies based on substrate topography have been developed in combination with modeling using self consistent field theory. The structures formed by self-assembly are governed by commensurability between the template and the equilibrium period of the block copolymer. The templating of complex patterns such as 3D cross-point structures from bilayer films of a diblock copolymer, and arrays of rings, square-symmetry posts and Archimedean tiling patterns from linear or star triblock terpolymers will be described. Pattern transfer and applications to nanoscale device fabrication will be discussed.