

Abstract Submitted  
for the MAR11 Meeting of  
The American Physical Society

**Formation of Nanoparticle Stripe Patterns via Flexible-Blade Flow Coating** DONG YUN LEE, HYUN SUK KIM, CASSANDRA PARKOS, CHEOL HEE LEE, TODD EMRICK, ALFRED CROSBY — We present the controlled formation of nanostripe patterns of nanoparticles on underlying substrates by flexible-blade flow coating. This technique exploits the combination of convective flow of confined nanoparticle solutions and programmed translation of a substrate to fabricate nanoparticle-polymer line assemblies with width below 300 nm, thickness of a single nanoparticle, and lengths exceeding 10 cm. We demonstrate how the incorporation of a flexible blade into this technique allows capillary forces to self-regulate the uniformity of convective flow processes across large lateral lengths. Furthermore, we exploit solvent mixture dynamics to enhance intra-assembly particle packing and dimensional range. This facile technique opens up a new paradigm for integration of nanoscale patterns over large areas for various applications.

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Date submitted: 19 Nov 2010

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