Abstract Submitted
for the MAR13 Meeting of
The American Physical Society

An Extremely Simple Route to Large-Area Microchannels and Inorganic Stripes WEI HAN, BO LI, XUKAI XIN, ZHIQUN LIN, Georgia Institute of Technology — Microchannels were yielded in an extremely simple route by freely evaporating PS latex particle suspension on a rigid substrate, due to the capillary stress generated during the evaporation process that fractured the thin film and the cracks progressed towards the center of the evaporating suspension. The simple tailoring of the upper surface of the imposed confined geometry (i.e., parallel plates or vertical slide) directed the formation of parallel microchannels in a precisely controllable manner over large areas. Quite intriguingly, these prepared microchannel patterns may be served as templates to craft ordered Au stripes with unprecedented regularity. This facile approach opens a new avenue for producing macroscopic patterns and developing microelectronics or microfluidic-based biochips in a simple and controllable manner.

Wei Han
Georgia Institute of Technology

Date submitted: 14 Nov 2012 Electronic form version 1.4