

Supporting Information

Drying-Mediated Assembly of Colloidal Nanoparticles into Large-Scale Microchannels

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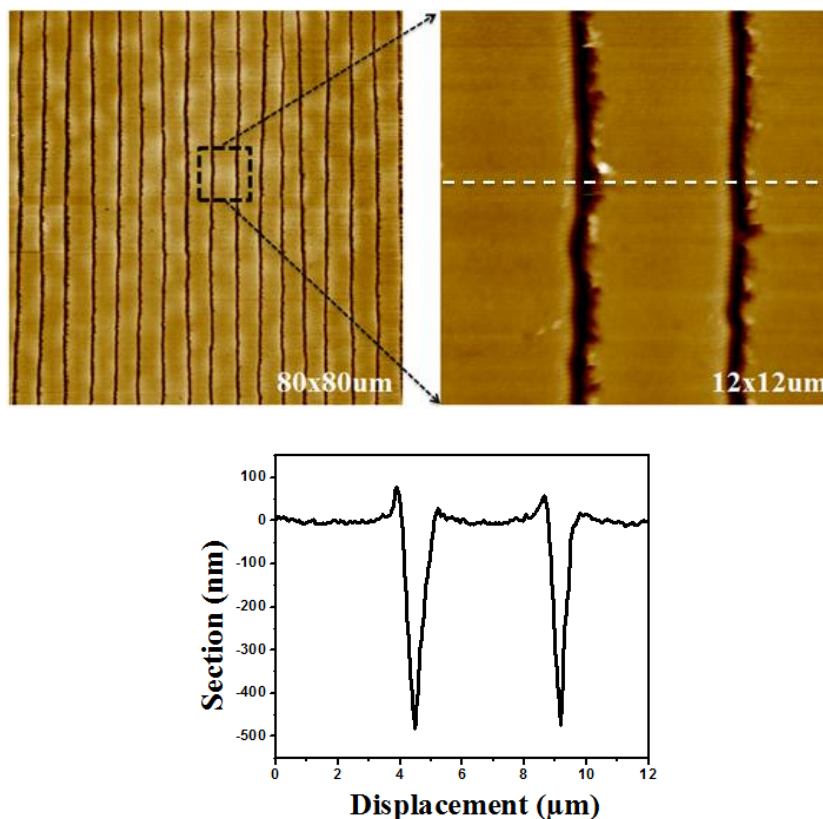


Figure S1. AFM images of microchannels separated by PS nanoparticle patterns. The cross sectional analysis of AFM height image revealed that the microchannels had a relatively depth of approximately 400 nm.

Figure S2

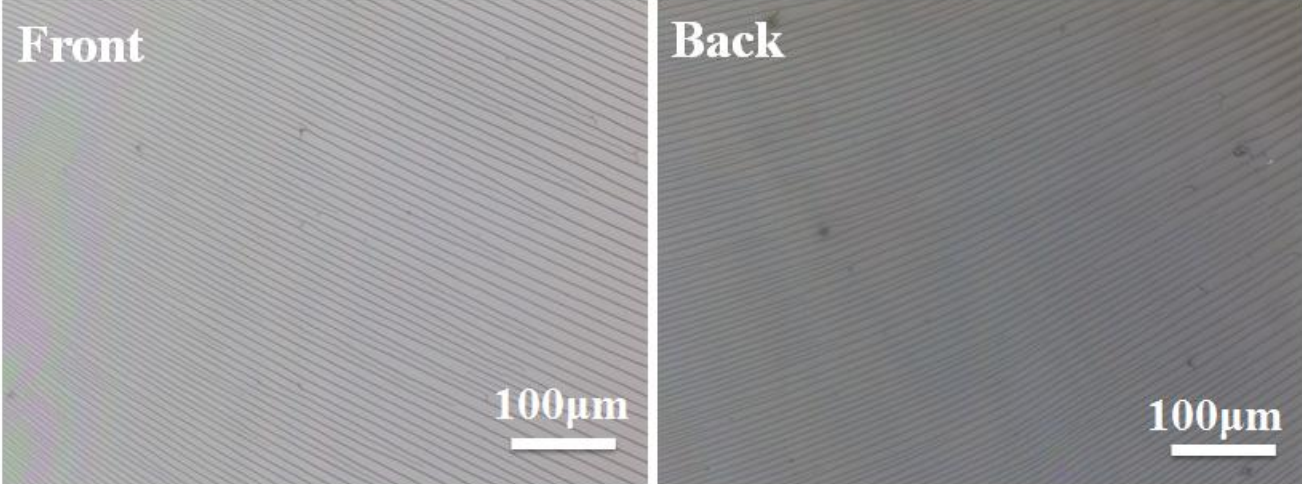


Figure S2. Optical micrographs of the front side and backside of microchannels on the glass substrate.

Figure S3

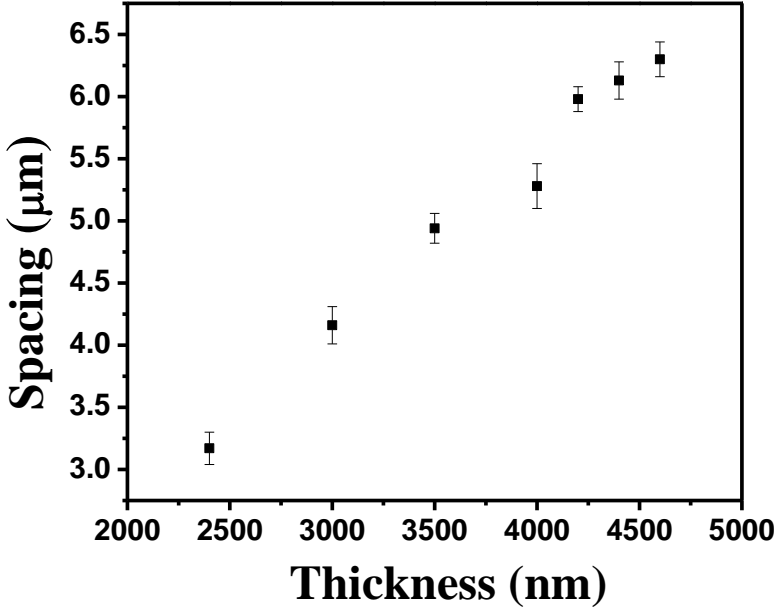


Figure S3. The spacing between the cracks (crack spacing) plotted as a function of the local thickness. The crack spacing increases with the increase in film thickness. Its variation deviates only slightly from a simple linear increase, which is consistent with previous theoretical studies.

Figure S4



Figure S4. Optical micrograph of PS nanoparticles deposited on the hydrophobic HMDS substrate at 60°C. Highly concentrated ring-like pattern was observed. The large but irregular cracks were also seen due to the evaporation of residual water.

Figure S5

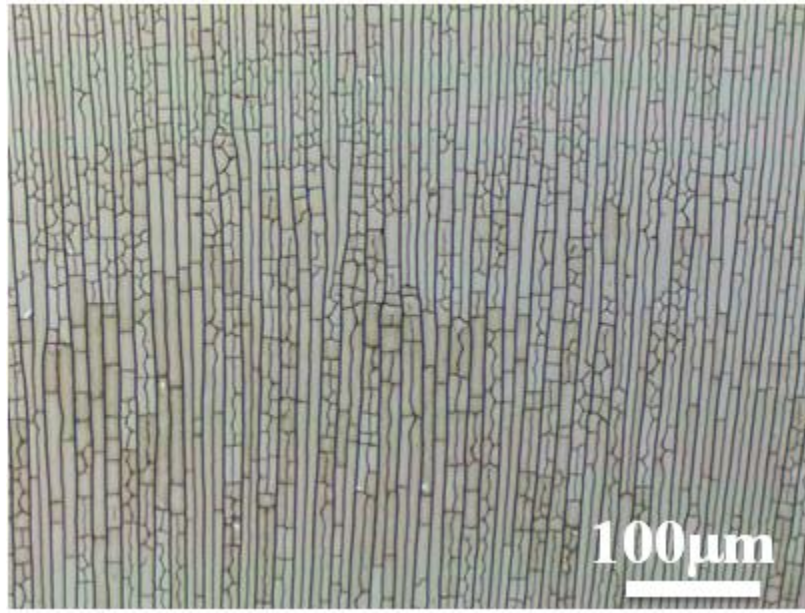


Figure S5. Optical micrograph of microchannels formed at room temperature. The microchannels were not well-ordered, and the branching (i.e., secondary cracks) between cracks was also produced on the Si substrate due to the residual stresses in the film originated from the presence of residual water at room temperature.

Figure S6

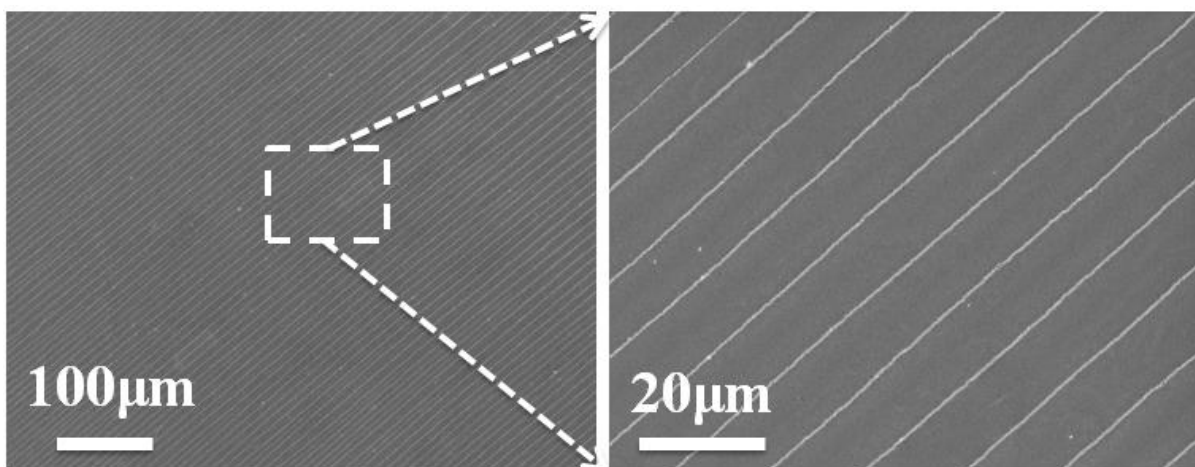


Figure S6. SEM images of periodic Au stripes, produced by utilizing templates formed by constrained evaporation between two nearly parallel plates.