

## Electronic Supplementary Information

### **Non-equilibrium Thermal Annealing of Polymer Blend in Bilayer Settings for Complex Micro/Nano-Patterning**

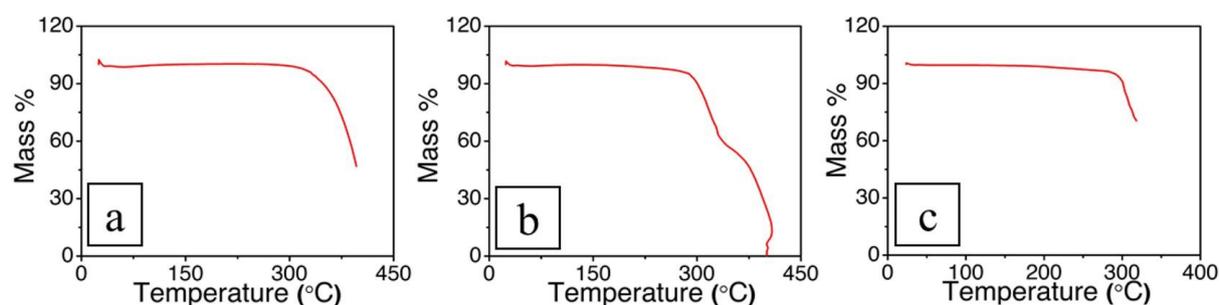
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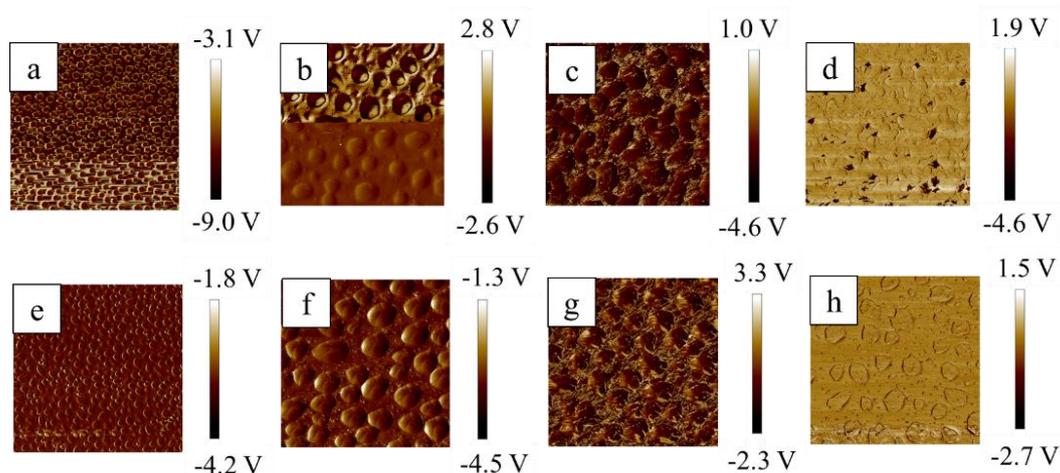
#### Section S1: TGA of the polymers in presence of air



**Fig. S1** TGA for (a) PS (b) PMMA and (c) random PS-r-PMMA in presence of air.

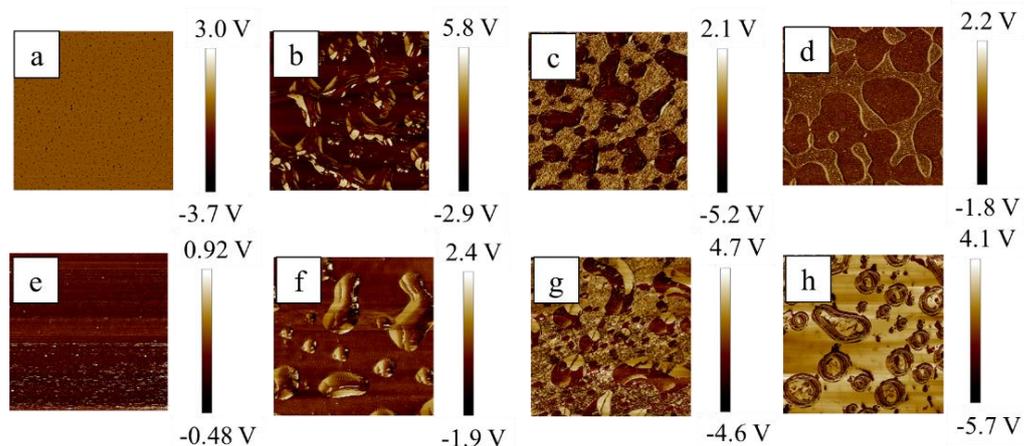
#### Section S2: AFM phase images

##### **S2.1 Phase Images for blend over PS underlayer**



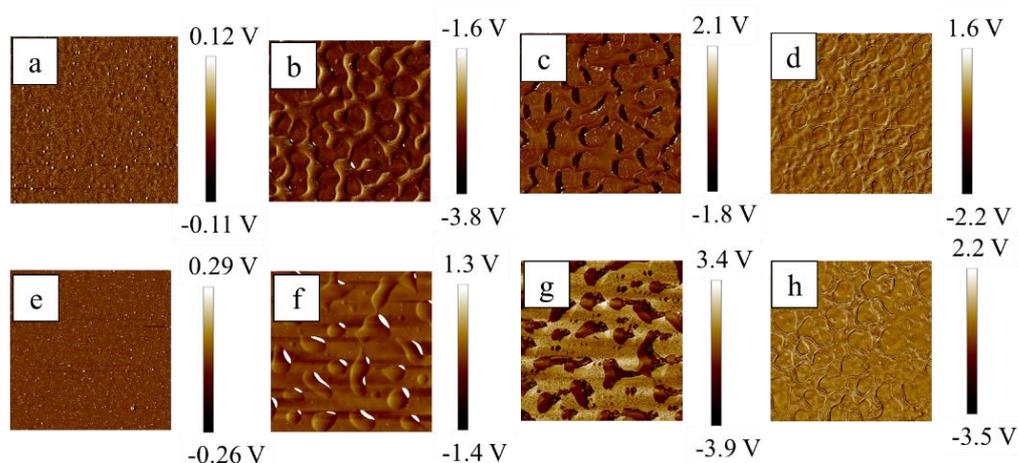
**Fig. S2.1** The AFM phase images for blend over  $\sim 17$  nm PS underlayer after (a) spin coating (b) RTA (c) acetic acid and (d) cyclohexane treatment. Similarly, AFM phase scans of  $20 \mu\text{m} \times 20 \mu\text{m}$  for blend over  $\sim 53.6$  nm PS underlayer after (e) spin coating (f) RTA (g) acetic acid and (h) cyclohexane treatment.

### S2.2 Phase Images for blend over PMMA underlayer



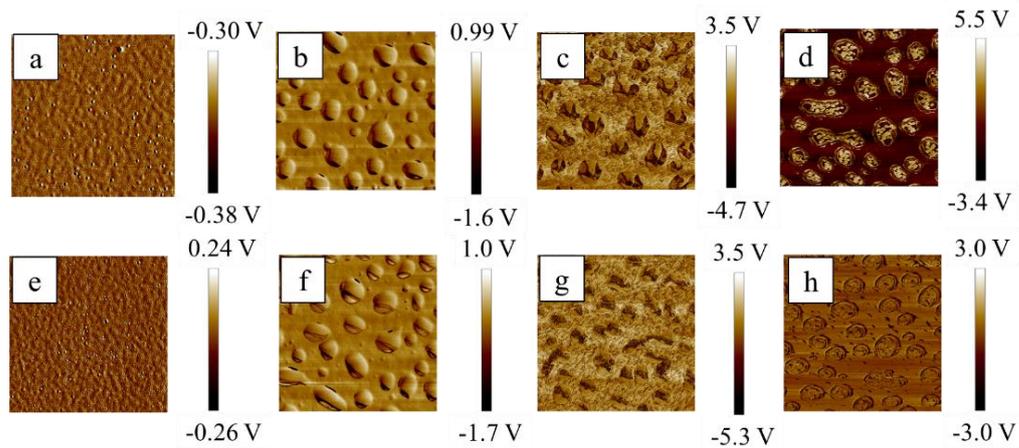
**Fig. S2.2** The AFM phase scans of  $20\ \mu\text{m} \times 20\ \mu\text{m}$  for blend over  $\sim 20\ \text{nm}$  PMMA after (a) spin coating (b) RTA (c) acetic acid and (d) cyclohexane treatment. Similarly, AFM phase scans of  $20\ \mu\text{m} \times 20\ \mu\text{m}$  for blend over  $\sim 47\ \text{nm}$  PMMA after (e) spin coating (f) RTA (g) acetic acid and (h) cyclohexane treatment.

### S2.3 Phase Images for blend over blend underlayer



**Fig. S2.3** AFM phase scans of  $20\ \mu\text{m} \times 20\ \mu\text{m}$  for blend over  $\sim 23\ \text{nm}$  blend after (a) spin coating (b) after RTA (c) acetic acid treatment and (d) cyclohexane treatment. Similarly, AFM phase scans of  $20\ \mu\text{m} \times 20\ \mu\text{m}$  for blend over  $\sim 53\ \text{nm}$  blend after (e) spin coating (f) RTA (g) acetic acid treatment and (h) cyclohexane treatment.

## S2.4 Phase Images for blend over RCP underlayer



**Fig. S2.4** AFM phase scans of 20 μm x 20 μm for blend over ~ 22 nm RCP after (a) spin coating (b) RTA (c) acetic acid treatment and (d) cyclohexane treatment. Similarly, AFM phase scans of 20 μm x 20 μm for blend over ~ 47 nm RCP after (e) spin coating (f) RTA (g) acetic acid treatment and (h) cyclohexane treatment.