ELECTRONIC SUPPLEMENTARY INFORMATION

Thermoresponsive Switching of Liquid Flow Direction on a Two-Face Prism Array

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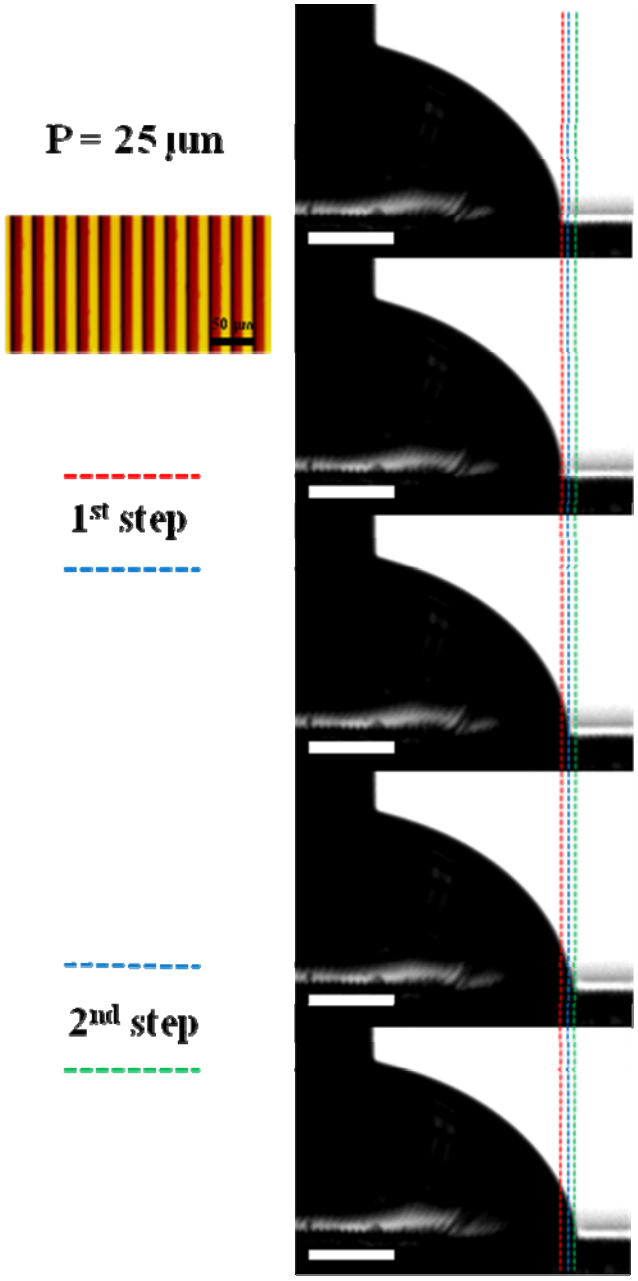

Fig. S1 Movie cuts showing the liquid step flow with 25 μm-pitched two face prism array. The inset of an optical microscope images shows the left faces of the prisms are covered with metal films.

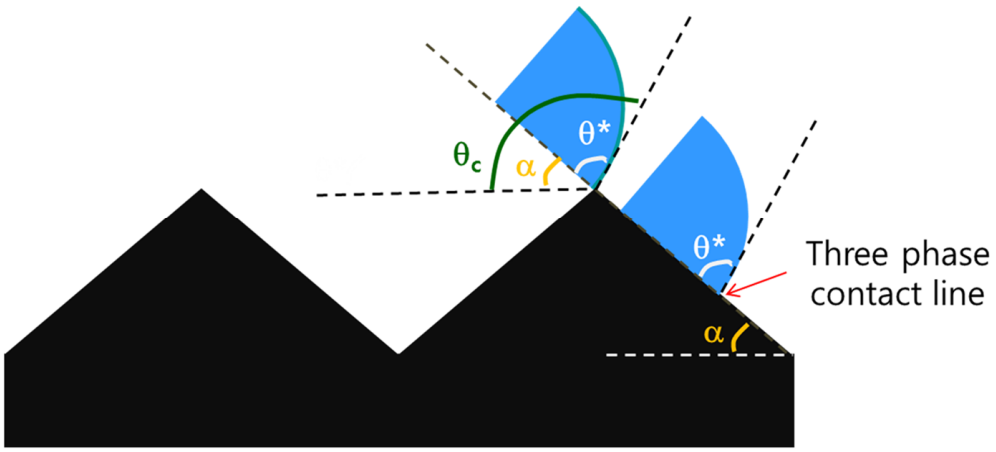

Fig. S2 A schematic illustration explaining the critical contact angle (θ_c) which is the sum of the contact angle on a planar surface (θ^*) and the defined prism angle (α)[27-28].

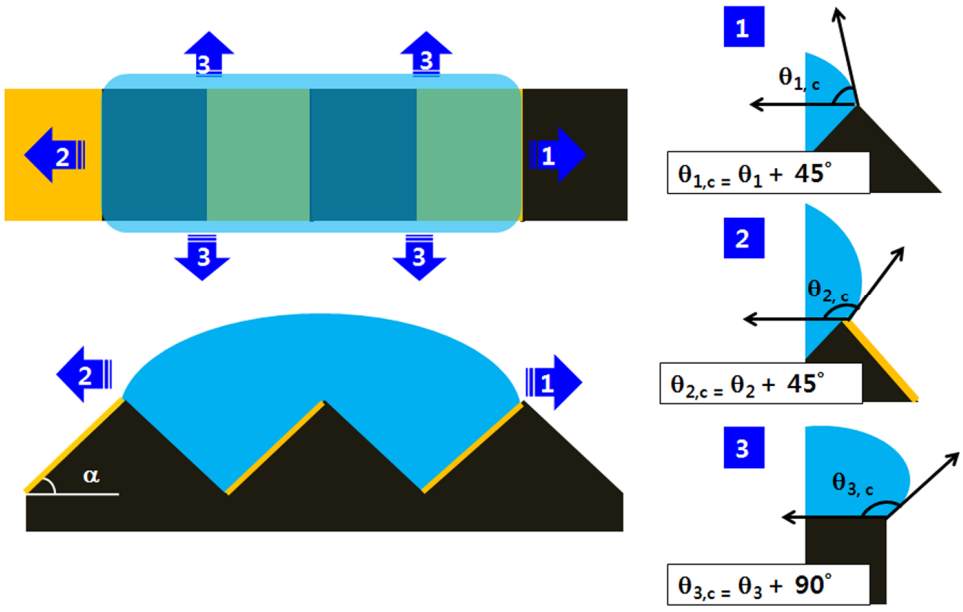

Fig. S3 Schematic illustrations explaining the relationships of critical contact angles for three directions. Direction 1 means that a liquid droplet flows across the ridge of PNIPAAm surface. Direction 2 is toward the Pt-coated direction. Direction 3 is out of the prism array. Because the critical contact angle could be obtained by equation 1, ($\theta_c = \theta^* + \alpha$), the edge angle is very important to critical contact angle. In the case of direction 3, α is 90° and the critical contact angle $\theta_{3,c}$ is always higher than the lowest critical contact angle.

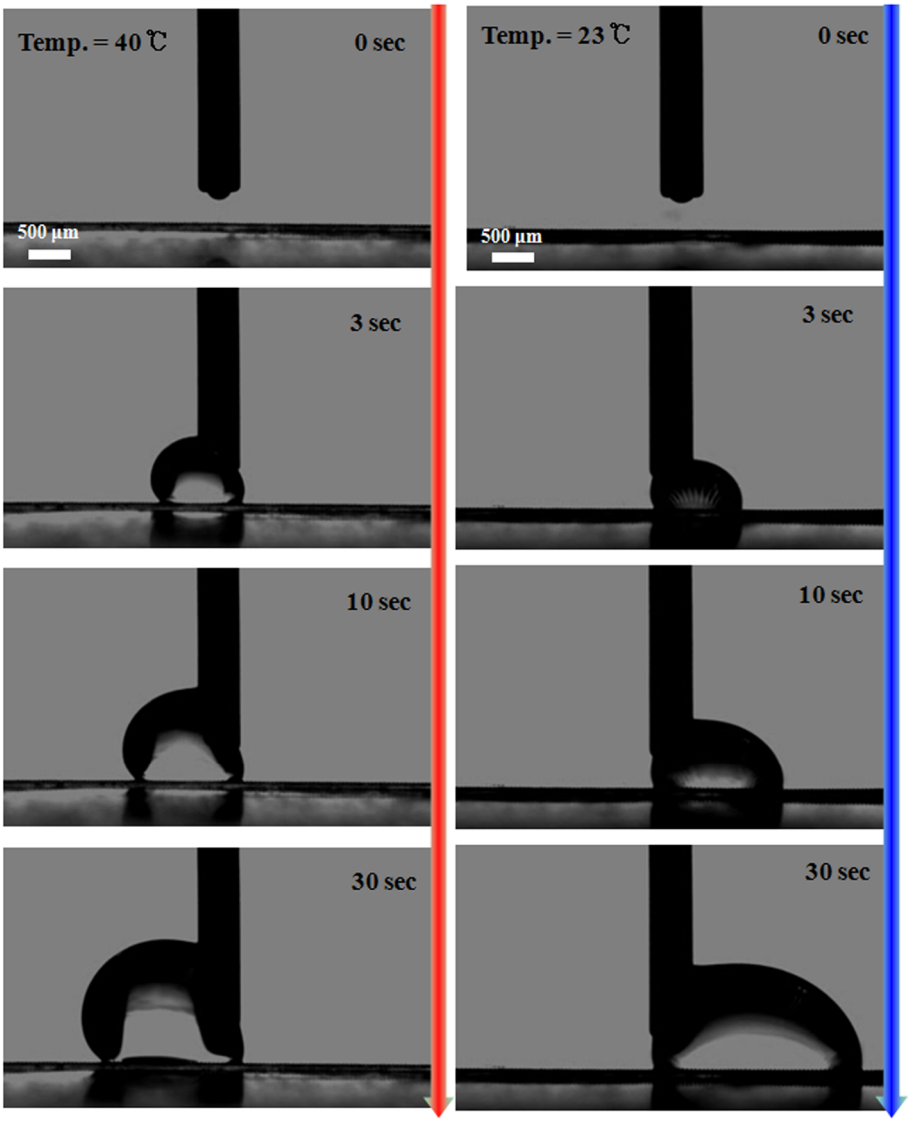

Fig. S4 Movie cuts showing the directional liquid flow on the two-face prism array at 23°C (right column) and 40° (left column) with time lapse.

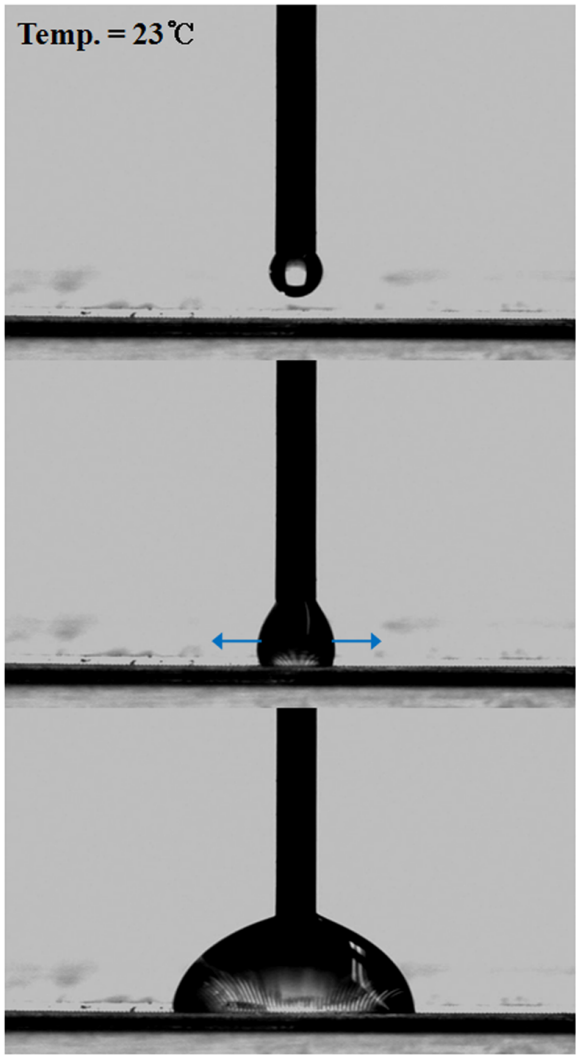

Fig. S5 Movie cuts showing the liquid flow on a symmetric PNIPAAm prism array at 23°C.