

## Supporting Information

### **Icephobic Surfaces Induced by Interfacial Non-Frozen Water**

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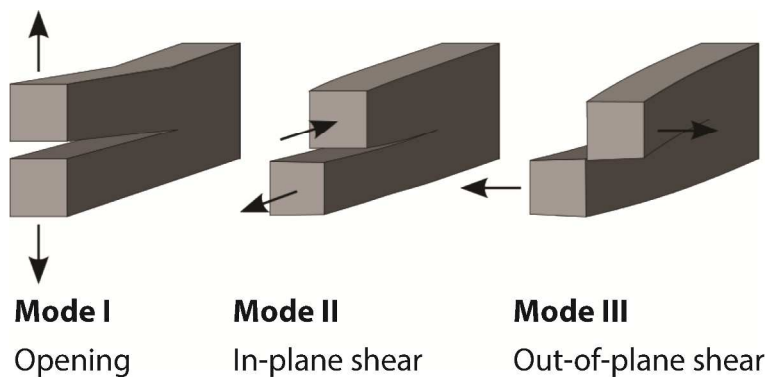
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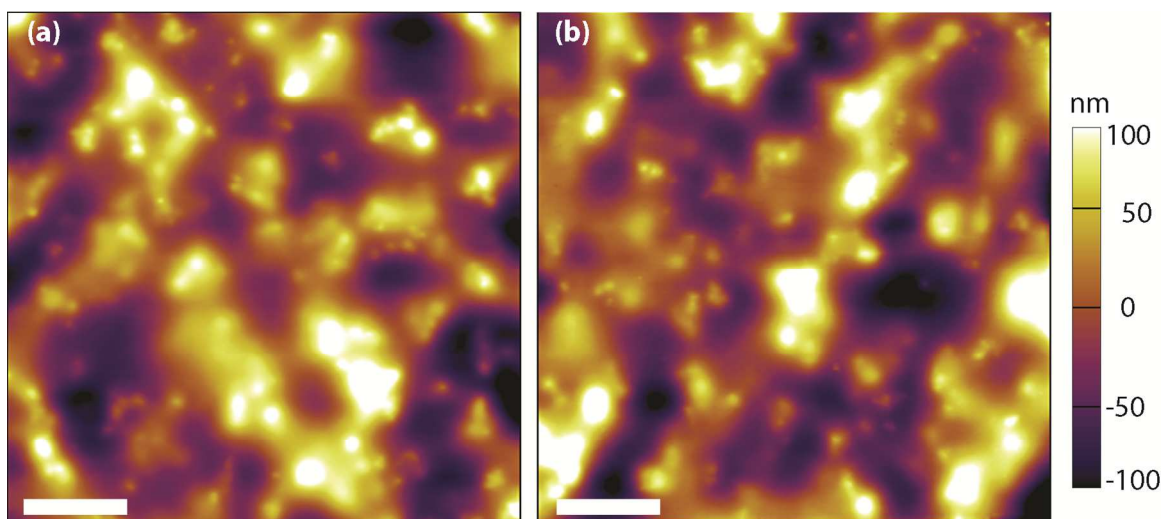
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**Figure S1** Three modes of fracture. Using our current ice adhesion test apparatus as illustrated in Figure 1, the ice cubes detach from the surface mostly by Mode II (in-plane shear) fracture.



**Figure S2** Surface topography of a PDMS (Sylgard 184 10:1 base:crosslinker by weight) elastomer film containing 1 wt% PDMS-PEG copolymer (DBE-224) by atomic force microscopy (AFM). **(a)** The surface root-mean-square roughness is  $\sim 40$  nm in the dry state. **(b)** The wet state surface root-mean-square roughness remains about 40 nm measured by tapping mode AFM in water. Scale bars represent 10  $\mu\text{m}$ .

**Table S1.** Chemical Shift and Relaxation Data for Peaks A, B, and C.

T (K)	Peak A			Peak B			Peak C		
	<sup>1</sup> H CS (ppm)	<sup>1</sup> H T <sub>2</sub> (ms)	β	<sup>1</sup> H CS (ppm)	<sup>1</sup> H T <sub>2</sub> (ms)	β	<sup>1</sup> H CS (ppm)	<sup>1</sup> H T <sub>2</sub> (ms)	β
276 K	5.03	566±13	1.15±0.04	5.03	354±8	1.06±0.03	N/A	N/A	N/A
268 K	5.04	389±61	0.85±0.12	5.10	216±15	0.68±0.04	5.01	150±15	0.55±0.04
263 K	5.08	337±40	0.99±0.13	5.15	207±11	0.70±0.03	5.12	73±4	0.66±0.03
258 K	5.14	225±20	0.87±0.08	5.22	65±12	0.65±0.09	5.07	13±2	0.53±0.07
253 K	5.25	122±5	1.02±0.05	5.27	50±5	0.79±0.07	N/A	N/A	N/A

**Table S2.** Calculated Rotational Correlation Times and Viscosities for Peaks A, B, and C.

T (K)	Peak A		Peak B		Peak C	
	τ <sub>c</sub> (10 <sup>-11</sup> s)	η (Pa·s)	τ <sub>c</sub> (10 <sup>-11</sup> s)	η (Pa·s)	τ <sub>c</sub> (10 <sup>-11</sup> s)	η (Pa·s)
276 K	3.47	0.0094	5.54	0.015	N/A	N/A
268 K	5.04	0.013	9.09	0.024	13.1	0.034
263 K	5.82	0.015	9.49	0.024	27.3	0.070
258 K	8.73	0.022	30.8	0.077	254	0.64
253 K	16.2	0.040	40.3	0.10	N/A	N/A

## Movie 1

Incorporating 1 wt% DBE-224 PDMS-PEG copolymer into a 20 μm thick PDMS elastomer film delays the heterogeneous nucleation of ice in a water drop of 300 μL placed on the top surface by 2-3 min. The PDMS elastomer film coated on a silicon wafer is maintained at -15 °C by a Peltier cooling plate placed underneath. A PDMS elastomer film containing no PDMS-PEG copolymer was used as a control. The movie is sped up by a factor of 20.