## Supplementary Information

## Unidirectional Transport of Water Nanodroplet Entrapped inside Nonparallel Smooth Surface: A Molecular Dynamics Simulation Study

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**Figure S1:** Different types of NPS with different surface angle ( $\theta$ ) and separation distance (S).

**Table S1:** Table containing information about the surface angle  $(\theta)$  and separation distance (S) of different types of NPS.

Type of NPS	Surface Angle "θ" (°)	Separation Distance "S" (Å)
A1	5	30
A2	7	40
A3	9	50
A4	11	60
A5	13	70

**Table S2:** Table containing information about the effect of surface energy on water bridge formation between two NPSs containing 3000, 4000, 5000 and 6000 molecules.

Surface	Type of NPS				
Energy (meV)	Bridge Formation (for 3000 water molecule droplet)				
	A1	A2	A3	A4	A5
7.5	Yes	Yes	Yes	Yes	No
17.5	Yes	Yes	Yes	No	No
27.5	Yes	Yes	No	No	No
37.5	Yes	Yes	No	No	No
Surface Energy (meV)	Type of NPS Bridge Formation (for 4000 water molecule droplet)				
	A1	A2	A3	A4	A5
7.5	Yes	Yes	Yes	Yes	Yes
17.5	Yes	Yes	Yes	Yes	No
27.5	Yes	Yes	No	No	No
37.5	Yes	Yes	No	No	No
Surface	Type of NPS				
Energy (meV)	Bridge Formation (for 5000 water molecule droplet)				
	A1	A2	A3	A4	A5
7.5	Yes	Yes	Yes	Yes	Yes
17.5	Yes	Yes	Yes	Yes	No
27.5	Yes	Yes	Yes	No	No
37.5	Yes	Yes	No	No	No
Surface	Type of NPS				
			Type of Mix	5	
Energy (meV)	Bri	dge Formation	n (for 6000 wat	ter molecule dr	oplet)
Energy (meV)	Bri A1	dge Formation A2	n (for 6000 wat A3	ter molecule dr A4	oplet) A5
Energy (meV) 7.5	Bri A1 Yes	dge Formation A2 Yes	A3 Yes	ter molecule dr A4 Yes	oplet) A5 Yes
Energy (meV) 7.5 17.5	Bri A1 Yes Yes	dge Formation A2 Yes Yes	A3 Yes Yes	ter molecule dr A4 Yes Yes	oplet) A5 Yes No
Energy (meV) 7.5 17.5 27.5	Bri A1 Yes Yes Yes	dge Formation A2 Yes Yes Yes Yes	A3 Yes Yes Yes	ter molecule dr A4 Yes Yes No	oplet) A5 Yes No No

**Table S3:** Table containing information about the effect of surface energy on water contact angle on flat surface and its respective interaction with the solid surface.

Surface Energy (meV)	Water Contact Angle (°)	Interaction Energy (meV/molecule)
7.5	110.4	-3.132
17.5	83.5	-8.704
27.5	64.3	-15.477
37.5	40.2	-25.708