



TECHNOLOGY READINESS LEVEL

4-7

Seeking

Investment | Licensing | Research

Keywords

- super liquid repellency surfaces
- liquid harvesting surfaces
- super condensing surfaces
- fog harvesting
- oil/water separation

Researchers

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Other Researchers

Originating College

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Technology Summary

This novel liquid-repellant surface design can maintain droplet mobility in both the Cassie and Wenzel states, by reducing the 'pinning' effect of the Wenzel state through the use of lubricants. The inventors used a microscopically-thin conformal layer of lubricant on the surface nanotextures to smoothen the sharp edges of the surface texture. This reduces immobility by reduced pinning effect.

Application & Market Utility

Owing to the high surface area relative, the slippery rough surface exhibits enhanced drop nucleation and coalescence, resulting in faster droplet removal. The slippery rough surface is also efficient in separating oils from an emulsion due to its superoleophilic nature. It also prevents fouling as an added advantage due to the extremely slippery nature which rids itself of all the oil during recovery, with bare minimal cleaning requirements. The longevity of the surface is also good when appropriate lubricant properties are chosen.

Next Steps

Applications may include fog harvesting, dropwise condensation, oil condensation, oil/water separation, anti-icing/frosting device, anti-fouling surfaces and drag reducing surfaces.



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