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Melting Frozen Droplets Using Photo-Thermal Traps SUSMITA DASH, JOLET DE RUITER, KRIPA VARANASI, Massachusetts Institute of Technology — Ice buildup is an operational and safety hazard in wind turbines, power lines, and airplanes. While traditional de-icing methods are energy-intensive or environmentally unfriendly, passive anti-icing approach using superhydrophobic surfaces fails under humid conditions, which necessitates development of passive deicing methods. Here, we investigate a passive technique for deicing using a multi-layer surface design that can efficiently absorb and convert the incident solar radiation to heat. The corresponding increase in substrate temperature allows for easy removal of frozen droplets from the surface. We demonstrate the deicing performance of the designed surface both at very low temperatures, and under frost and snow coverage.

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