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**Self-cleaning of superhydrophobic surfaces by spontaneously jumping condensate drops** KATRINA WISDOM, Duke University, JOLANTA WATSON, GREGORY WATSON, James Cook University, CHUAN-HUA CHEN, Duke University — The self-cleaning function of superhydrophobic surfaces is conventionally attributed to the removal of contaminating particles by impacting or rolling water droplets, which implies the action of external forces such as gravity. Here, we demonstrate a new self-cleaning mechanism, whereby condensate drops spontaneously jump upon coalescence on a superhydrophobic surface, and the merged drop self-propels away from the surface along with the contaminants. The jumping-condensate mechanism is shown to autonomously clean superhydrophobic cicada wings, where the contaminating particles cannot be removed by external wind flow. Our findings offer new insights for the development of self-cleaning materials.

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