

Abstract Submitted
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Design and fabrication of macro-textured, super-repellent surfaces to reduce the contact time of an impacting droplet.¹ HAMED VAHABI, LEWIS M. BOYD, SANLI MOVAFAGHI, WEI WANG, ARUN KOTA, Colorado State University — The time span that an impacting drop is in contact with the solid—the ‘contact time’—depends on the inertia and capillarity of the drop, internal dissipation and solid–liquid interactions. Reduction of the contact time is often interested since it controls the extent to which mass, momentum and energy are exchanged between the drop and the surface. It has been recently demonstrated that the presence of macrotextures on super-repellent surfaces can entirely alter the dynamics of droplets impacting the surfaces, and in particular significantly reduce the contact time of impacting droplets, compared to that of super-repellent surface without a macro-texture. Here, we designed and fabricated super-repellent surfaces possessing macro-textures with different profiles and studied the influence of geometrical features of the macro-texture on fluid dynamics of impacting droplets.

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