

Abstract Submitted  
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**Partitioning of a Falling Droplet's Energy After Surface Impact**

VANESSA KERN, PAUL STEEN, Cornell University — Understanding energy partitioning post-impact is a first step to understanding immersive flow-forming processes. Here we investigate the partitioning of kinetic energy into surface energies for capillary water droplets falling onto homogeneous prepared hydrophilic, hydrophobic and super-hydrophobic surfaces. We analyze high-speed images of the impact event. Pre-impact Weber numbers range from 0-15. After impact and initial spreading, the droplet's contact line pins. After pinning, there is a slow decay to the rest state. During this underdamped decay, the droplet's remaining kinetic energy partitions into a linear combination of mode shape energies. These mode shapes and their frequencies correspond to those of pinned sessile droplets from theory. The influence of impact energy on modes excited will be discussed.

Vanessa Kern  
Cornell University

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