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Drop impacting on a hydrophobic elastic beam[1] DANIEL CHIQUE CANACHE, SUNGHWAN JUNG, Department of Engineering Science and Mechanics, Virginia Tech — Plant suraces found in nature often exhibit hydrophobic wetting properties; in particular, the surface of leaves are an example. When a water drop impacts a leaf a unique system of coupled solid and fluid mechanics is observed. By replacing the leaf as as simple thin polycarbonate cantilever beam it is possible to create a workable model for the system. A high-speed camera allows detailed observation of the dynamics of the beam and drop at the moment of impact. Through image analysis, the position and shape of the beam and drop are analyzed to calculate bending energy and kinetic energy. Experiments show that the available energy in the system is close to 0.1 mJ. The results of this experiment provide insight into energy harvesting from raindrops using a piezo cantilever.

[1]COE Diversity Summer Research Program

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