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The influence of the surrounding gas on drop impact onto a wet substrate ROBERT DEEGAN, LI ZHANG, JAMESON TOOLE, University of Michigan — The impact of a droplet with a wet or solid substrate creates a spray of secondary droplets. The effect of the surrounding gas on this process was widely neglected prior to the work of Xu, Zhang, & Nagel which showed that lowering the gas pressure suppresses splashing for impact with a dry solid substrate. Here we present the results of our experimental investigation of the effect of the surrounding gas on the evolution of splashes from a wet substrate. We varied the density and pressure of the surrounding gas. We find quantitative changes to the onset thresholds of splashing and on the size distribution of, but no qualitative changes. The effects are most pronounced on the evolution of the ejecta sheet.

Robert Deegan
University of Michigan

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