Abstract Submitted
for the DFD17 Meeting of
The American Physical Society

Effect of film control on low inertia drops impacting a flowing film[1] IDRIS ADEBAYO, Imperial College London, ZHIZHAO CHE, Tianjin University, China, OMAR K. MATAR, Imperial College London — Droplet impact is a ubiquitous phenomenon in nature and attracts attraction from any curious observer, due to its aesthetic fascination, and wide-ranging applications. Previous studies in the literature have focused on impact on different types of surfaces (solids and liquids); with the liquid surfaces being either thin, shallow or deep, quiescent or flowing. In this study, we show for the first time, the effect of inlet forcing of the liquid film on the impact outcome for drops with low inertia. We utilise a high-speed camera to visualize the dynamics while customised Matlab routines are developed to analyse the results quantitatively. The effects of important dimensionless quantities such as film Reynolds, drop Weber, and Ohnesorge numbers parameterised by the film flowrate, drop speed, and drop size are also examined. Our results show interesting hither-to undiscovered dynamics brought about by the application of film inlet forcing.

[1]Petroleum Technology Development Fund, EPSRC, UK, MEMPHIS program grant (EP/K003976/1), RAEng Research Chair (OKM)

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Date submitted: 26 Jul 2017 Electronic form version 1.4