

Abstract Submitted  
for the DFD15 Meeting of  
The American Physical Society

**Modeling drop impacts on inclined flowing soap films** SAIKAT BASU, Okinawa Institute of Science and Technology, Japan, ALI YAWAR, Yale University, U.S.A., ANDRES CONCHA, Adolfo Ibaez University, Chile, MAHESH BANDI, Okinawa Institute of Science and Technology, Japan — Small drops impinging on soap films flowing at an angle primarily exhibit three fundamental regimes of post-impact dynamics: (a) the drop bounces off the film surface, (b) it coalesces with the downstream flow, and (c) it pierces through the film. During impact, the drop deforms along with a simultaneous, almost elastic deformation of the film transverse to the stream direction. Hence, the governing dynamics for this interaction present the rare opportunity to explore the in-tandem effects of elasticity and hydrodynamics alike. In this talk, we outline the analytical framework to study the drop impact dynamics. The model assumes a deformable drop and a deformable three-dimensional soap film and invokes a parametric study to qualify the three mentioned impact types. The physical parameters include the impact angle, drop impact speed, and the diameters of the drop prior to and during impact when it deforms and spreads out. Our model system offers a path towards optimization of interactions between a spray and a flowing liquid.

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Date submitted: 24 Jul 2015

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