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Interactions between micro droplets and a flowing soap film IL-DOO KIM, XIAO-LUN WU, University of Pittsburgh — When a jet of micron sized water droplets impact on a thin freely suspended soap film, craters of various sizes are created in the film. Depending on the velocity of the jet and the thickness of the film, a fraction of the particles is able to penetrate through the film without breaking it while others merge with the film. The statistical nature of penetration suggests that the energy barrier for passage is a fluctuating quantity but the cause of such fluctuation is not understood. Using a high-speed video camera, the interaction between the droplet and the film is investigated for various conditions. Aside from its fundamental interest, the technique is potentially useful for generating predetermined number of vortices in the fluid and for depositing precisely passive scalar quantities, such as dyes, into two-dimensional turbulence in the flowing film.

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