



S1.2.1 - Fluid Mechanics of Droplet Fiber Adhesion

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Quantifying the adhesion force between a droplet and a fiber is not a trivial task. The research outlined in this presentation is aimed at improving our understanding of the interactions between a single or multiphase droplet and a fiber. This presentation also includes a discussion on the formation and breakup of a liquid bridge between two parallel or orthogonal fibers with dissimilar wettabilities, and how these fibers compete for the droplet that results from a liquid bridge breakup.

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Dr. Hooman Tafreshi is a faculty member in the Mechanical and Aerospace Engineering Department at NC State University. He also serves as the Associate Director for Research at the Nonwovens Institute. Dr. Tafreshi's research is in the field of thermo-fluids sciences at its interface with material science. His particular research focus is on multiphase fluids and particle/droplet transport through fibrous materials with applications in filtration and separation sciences. This also includes interfacial phenomena and droplet-surface interactions for self-cleaning and drag reduction applications. Dr. Tafreshi's group has published more than 140 peer-reviewed journal articles in the above and other areas of thermo-fluid sciences, including liquid jets and two-phase nozzle flows. Dr. Tafreshi is an active member of the American Filtration and Separation (AFS) Society and also serves on the editorial board of *Separation and Purification Technology Journal*.

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