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Muhammad I Hameed* (mih3@njit.edu), Steinman Hall, #1M, City College of CUNY, 140th Street & Convent Avenue, New York, NY 10031. *Influence of Surfactant on the Breakup of a Low Viscosity Jet in Highly viscous Surrounding.*

The effect of variable surface tension on the breakup of a fluid jet surrounded by another viscous fluid at low Reynolds number is studied both theoretically and experimentally. Equations governing the evolution of the interface and surfactant concentration are derived using long wavelength approximations. These one dimensional partial differential equations are solved numerically using method of lines for given initial interface and surfactant concentration. It is found that the presence of insoluble surfactant at the interface retards pinch-off. To check the predictions of our model, we performed experiments both for clean interface and as well as in presence of surfactants. The experimental results support the prediction of theoretical model that the presence of surfactant slows down the pinch-off process. (Received September 29, 2005)