

Abstract Submitted  
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**Laminar Flow Deformation of a Droplet Adhering to a Wall in a Channel** GITANJALI SEEVARATNAM, Post Doctoral Research Associate in Chemical Engineering, OLIVIER MICHEL, Undergraduate Student, JERRY HENG, Lecturer in Chemical Engineering, HANG DING, Post Doctoral Research Associate in Chemical Engineering, PETER SPELT, Lecturer in Chemical Engineering, OMAR MATAR, Professor of Fluid Mechanics — We study the deformation of a droplet adhering to a solid, rigid wall in a rectangular channel induced by a pressure-driven flow of another fluid. Our experimental investigation involves the systematic study of the effects of initial droplet volume, flow rate, viscosity ratio and substrate wettability on the various modes of droplet motion and deformation. Our results probe the critical conditions at which detachment of the droplet from the surface, sliding, entrainment and deformation occur. Comparisons of our experimental results with numerical predictions will be made.

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