

Abstract Submitted  
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**Capillary Rise in Tubes with Interior Corners**<sup>1</sup> MARK WEISLOGEL, TYLER MILHEM, BRIAND OAKS, Portland State University — The classic problem of sudden capillary rise in tubes (i.e. channels) with one or more interior corner is revisited from the perspective of a first tier advancing bulk meniscus of constant curvature that feeds second tier advancing corner flows. Asymptotic solutions are presented for the visco-capillary limit that extends the Lucas-Washburn solution to such geometries. These “compound capillary” flows are common but overlooked due to the relatively small impact on overall flow rate for typical geometries such as the square tube. However, for more acute sections, the second tier corner flows are significant and cannot be ignored. Such geometries may be exploited for a variety of applications including passive phase separations. Supportive experimental data are presented using both micro-scale terrestrial and macro-scale drop tower tests.

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