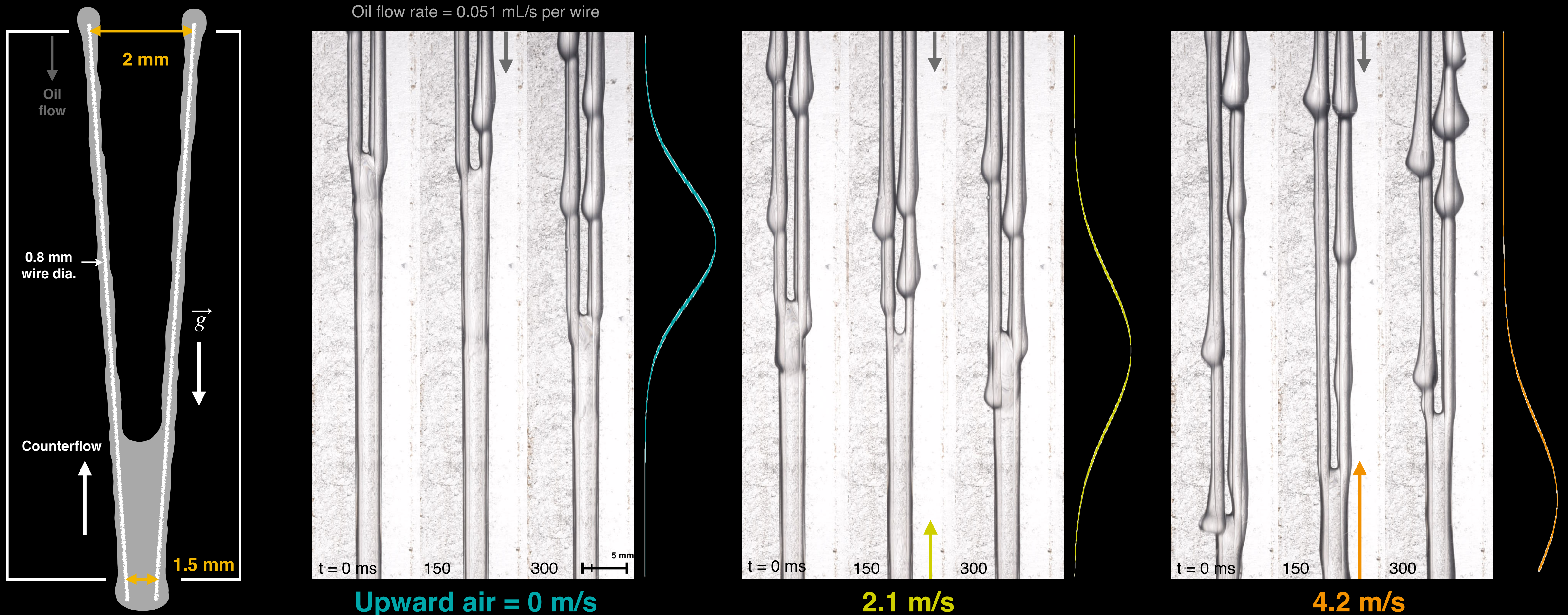


Oil on wires in a counterflow

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Silicone oil droplets sliding down two slightly converging wires (clear) eventually coalesce when the distance between wires approaches the capillary length (1.97 mm). However, this distance required for merging decreases if an upward gas flow is introduced. Here we show the location of the coalescence of the droplets in three counterflows with identical silicone oil flow rates (0.051 mL/s per wire). Three photographs are shown for each flow rate to illustrate the spacings between droplets that can occur. The probability density functions of the coalescing location are also shown. The droplets tend to get larger as the flow increases making the oil layer on the wire smaller. This tends to decrease the wire distance required for coalescence. If the counter flow is too high (~ 4.5 m/s), then the droplets will break up and leave the wire as smaller droplets.