

Abstract Submitted
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Measuring Surface Tension of a Flowing Soap Film AAKASH SANE, ILDOO KIM, SHREYAS MANDRE, Brown University — It is well known that surface tension is sensitive to the presence of surfactants and many conventional methods exist to measure it. These techniques measure surface tension either by intruding into the system or by changing its geometry. Use of conventional methods in the case of a flowing soap film is not feasible because intruding the soap film changes surface tension due to Marangoni effect. We present a technique in which we measure the surface tension in situ of a flowing soap film without intruding into the film. A flowing soap film is created by letting soap solution drip between two wires. The interaction of the soap film with the wires causes the wires to deflect which can be measured. Surface tension is calculated using a relation between curvature of the wires and the surface tension. Our measurements indicate that the surface tension of the flowing soap film for our setup is around 0.05 N/m. The nature of this technique makes it favorable for measuring surface tension of flowing soap films whose properties change on intrusion.

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