THE ARSENAL

Augusta University's Undergraduate Research Journal

ISSN 2380-5064 | The Arsenal is published by the Augusta University Libraries | <http://guides.augusta.edu/arsenal>

Volume 4, Issue 1 (2021)
Special Edition Issue

CHAOTIC DRIPPING

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Citation

Park, T., & Guerrero-Millan, J. (2021). Chaotic dripping. *The Arsenal: The Undergraduate Research Journal of Augusta University*, 4(1), 29.
<http://doi.org/10.21633/issn.2380.5064/s.2021.04.01.29>

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Chaotic Dripping

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ABSTRACT

Drops are around us in many aspects of our daily life. We can observe them from a leaky faucet in the kitchen to beautiful water fountains in many parks. Nowadays, its applications are not limited to simple observatory facts, but it has multiple applications in many different fields. Previous works have shown that drops exhibit chaotic behavior at high flow rates, which could potentially affect the quality of mass production droplets in industrial applications. Most of the previous works have been focus on studying drop formation in air. In this project, we were focused on studying the drop formation in air using several liquids with different viscosities. Additionally, we extended the study to emulsion drops. We used glass-based microfluidic devices to generate the emulsions and they were visualized using high speed microscopy techniques. The experimental data showed the different routes to chaos in each liquid, which confirmed the effects of liquid viscosity leading to this behavior.

Received: 02/15/2021 Accepted: 03/30/2021

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