Drop Emission by Dynamic Wetting in Thin Films at the Microscale: A Phase-Field Model Approach

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ABSTRACT

Controlling the advancement of fluids at the microscale is essential to successfully developed drop-producing microdevices. Drops in microfluidics could be used for drug delivery, cell carrier encapsulation and even logical bits manipulation. At these small scales surface to volume ratios are very large and capillary and wetting forces play a crucial role. We will describe wetting-induced fluid entrainment by advancing contact lines on surfaces by means of a phase-field model. The destabilization mechanism leads to the periodic emission of droplets [1, 2]. A new phenomenon that we dub superconfinement will be also discussed [3].

REFERENCES

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