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Special Issue Reprint

Droplet Microfluidics

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Droplet microfluidics has dramatically developed in the past decade and has been established as a microfluidic technology that can translate into commercial products. Its rapid development and adoption have relied not only on an efficient stabilizing system (oil and surfactant), but also on a library of modules that can manipulate droplets at a high-throughput. Droplet microfluidics is a vibrant field that keeps evolving, with advances that span technology development and applications. Recent examples include innovative methods to generate droplets, to perform single-cell encapsulation, magnetic extraction, or sorting at an even higher throughput. The trend consists of improving parameters such as robustness, throughput, or ease of use. These developments rely on a firm understanding of the physics and chemistry involved in hydrodynamic flow at a small scale. Finally, droplet microfluidics has played a pivotal role in biological applications, such as single-cell genomics or high-throughput microbial screening, and chemical applications. This Special Issue will showcase all aspects of the exciting field of droplet microfluidics, including, but not limited to, technology development, applications, and open-source systems.



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