

Abstract Submitted  
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**Experiments and lattice Boltzmann simulations for off-centered droplet collisions.**<sup>1</sup> KUO-LONG PAN<sup>2</sup>, National Taiwan University, MATTHEW ANDREW, University of Oxford, KUAN-LING HUANG, National Taiwan University, JULIA YEOMANS, University of Oxford — Three-dimensional lattice Boltzmann simulations have been performed to investigate the flow field underlying the impact dynamics of two identical droplets. The symmetry of the head-on droplet collision is broken by offsetting the approaching trajectories of the droplets. The outcomes are determined by three factors: the Weber number which measures the impact inertia relative to the surface tension, the Ohnesorge number, which characterizes the viscous force relative to surface force, and the angle between the colliding paths. The results are compared to experimental sequences obtained by a drop-on-demand technique with high-speed imaging process. Various mechanisms leading to separation of coalesced droplets are investigated and analyzed computationally, including reflexive separation, rotational separation and stretching separation.

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