**Magnetic field-assisted fission of Ferrofluid droplet for large-scale droplet generation**

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Movie S1

A Ferrofluid droplet is stretched along the *z* direction and deformed from sphere to elliptical shape. The magnetic induction strength near the solid surface is 10.87 mT and the impact velocity is 0.66 m s-1.

Movie S2

A Ferrofluid droplet impacts on a superhydrophobic surface without the magnetic field. The impact velocity is 0.99 m s-1. The maximum spreading diameter is 5.9 mm.

Movie S3

A Ferrofluid droplet impacts on a superhydrophobic surface with the presence of a magnetic field. The impact velocity is 1.0 m s-1 and the magnetic induction strength near the solid surface is 16.7 mT. The maximum spreading diameter is 5.0 mm.

Movie S4

A Ferrofluid droplet impacts on a superhydrophobic surface with the magnetic induction strength near the solid surface 3.96 mT and the impact velocity of 0.85 m s-1. The droplet undergoes the spreading-retraction-rebounding and breakup process.

Movie S5

A Ferrofluid droplet impacts on a superhydrophobic surface with the magnetic induction strength near the solid surface 16.7 mT and the impact velocity of 1.31 m s-1. The droplet experiences the rim instability in the receding process and no daughter droplet appears eventually.

Movie S6

A Ferrofluid droplet impacts on a superhydrophobic surface with the magnetic induction strength near the solid surface 40.5 mT and the impact velocity of 1.25 m s-1. The droplet experiences the rim instability in the spreading stage and the fission process completes before retraction. Eventually, the daughter droplets with evenly-distributed size form.

Movie S7

A Ferrofluid droplet impacts on a superhydrophobic surface with the magnetic induction strength near the solid surface 32.57 mT and the impact velocity of 2.65 m s-1. The droplet experiences the rim instability in the later spreading stage and forms the fingers. Some fingers complete the fission process and become tiny daughter droplets. The remained fingers retract centripetally and aggregate into one larger droplet. Eventually, the daughter droplets with unevenly-distributed size form.

Movie S8

The top view of a Ferrofluid droplet impacting on a superhydrophobic surface. Eventually, the daughter droplets with uniform size form. There are also some very small daughter droplets and these droplets result from the filaments connecting the daughter droplets with main part of the mother droplet.

Movie S9

The top view of a Ferrofluid droplet impacting on a superhydrophobic surface. Eventually, the daughter droplets with non-uniform size form.