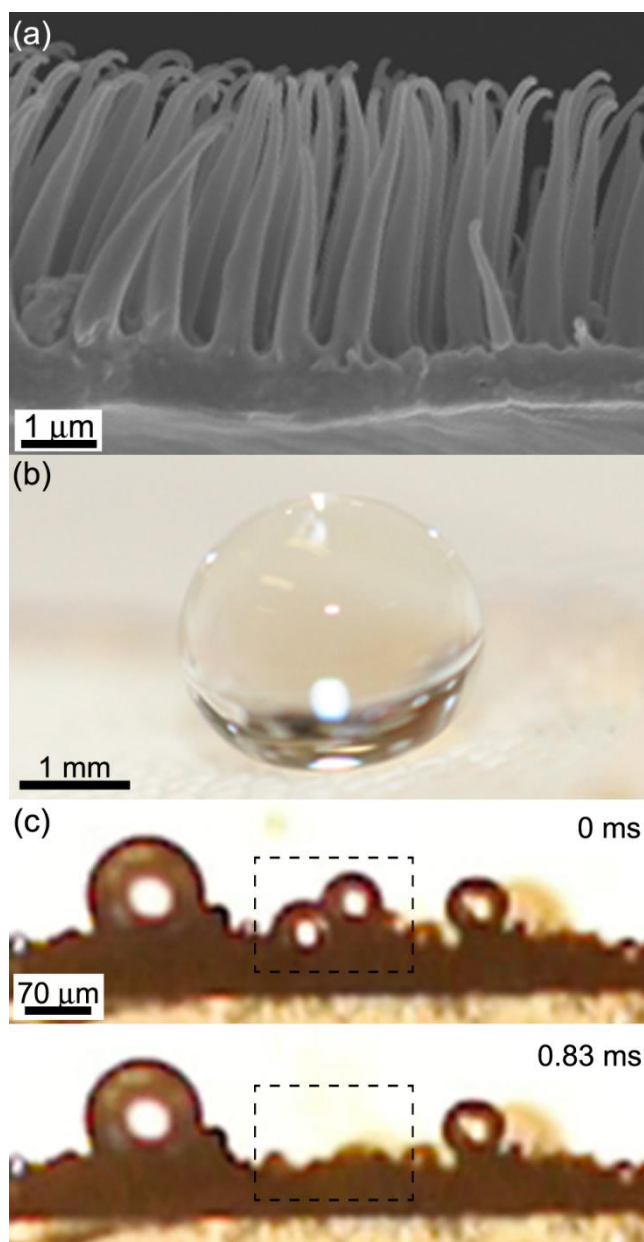


## Single Mobile Micro Droplet-Particle Pairs Spatially Captured by Macro Host Droplets on a Superhydrophobic Surface

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**FIGURE S1:** (a) SEM image of the superhydrophobic surface (gecko epidermis) used in our study consisting of a micro structuring featuring small hair fibres with lengths up to 4 μm. The fibres are spherically capped typically with a radius of curvature in the range of 10 to 30 nm. (b) Static water droplet on the fibres demonstrating a superhydrophobic surface with contact angle above 150°. (c) Optical snapshots of droplets self-propelling (before and after images) off the superhydrophobic surface (see also Movie S1).

**Supplementary Movie captions:**

**MOVIE S1:** Self-propulsion of a water droplet from the superhydrophobic fibre surface (orientated horizontally) when cooled below the dew point (see also Figure 1(c) & (d)). Captured at 1200 fps and played back at 30 fps (i.e., slowed down 40 times) (see also Figure S1(c)).

**MOVIE S2:** Motion (perturbation) of a single particle-droplet pair on a host drop. Air current speed less than  $0.001 \text{ m s}^{-1}$  directed parallel to host drop. Captured at 1200 fps and played back at 30 fps (i.e., slowed down 40 times) (see also Figure 1).

**MOVIE S3:** Motion of numerous particle-droplet pairs on a host drop. Air current speed less than  $0.01 \text{ m s}^{-1}$  directed parallel to the host drop (from right of image). Captured at 1200 fps and played back at 30 fps (i.e., slowed down 40 times) (see also Figure 2).

**MOVIE S4:** Motion of a numerous particle-droplet pairs on a pinned host drop. Air current speed less than  $0.02 \text{ m s}^{-1}$  directed parallel to host droplet (from right of image). Captured at 1200 fps and played back at 30 fps (i.e., slowed down 40 times) (see also Figure 2).

**MOVIE S5:** Two neighbouring secondary droplets merging and self-propelling from their respective particles and thus projected away from the host drop surface (see also Figure 3). Captured at 1200 fps and played back at 30 fps (i.e., slowed down 40 times).

**MOVIE S6:** Self-propelling condensate landing on the upper right region of a host drop which has numerous particle-droplet pairs already confined to its surface. Captured at 1200 fps and played back at 30 fps (i.e., slowed down 40 times).

**MOVIE S7:** An individual water droplet impacting on a seeded host drop surface with hydrophobic particles. The impacting secondary droplet is captured by a single particle on the host drop surface. Captured at 400 fps and played back at 30 fps (i.e., slowed down around 13 times).