# *Fun with superwalking droplets*

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Take a subwoofer of a computer speaker system and glue a petridish to the subwoofer cone. Pour some silicone oil (20cSt) into the petridish and vibrate it vertically by driving the speaker with a sinusoidal audio signal composed of 80Hz and 40Hz along with a phase difference. Flick a toothpick or use a syringe to create millitmeter-sized droplets on the free surface of the liquid. Increase the amplitude of vibrations by increasing the volume of the speaker and/or change the phase difference between the two driving frequencies until the droplets start walking. These are superwalking droplets that constitute self-propelled classical wave-particle entities (see image above). Such wave-particle entities can exhibit hydrodynamic quantum analogs whilst also forming a fascinating active-matter system, but above all, observing their motion and interactions is mesmerizing. Below is a simple setup of the system (right) and some trajectories (left) of interacting superwalkers taken using a smartphone in long exposure mode.