

Abstract Submitted  
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**Wave resistance** MARIE LE MERRER, FREDERIC CHEVY, ELIE RAPHAEL, CHRISTOPHE CLANET, DAVID QUERE, PMMH, ESPCI / LadHyx, Polytechnique — The more viscous, the more slippery! This is what happens when millimetric liquid nitrogen drops are thrown at the surface of water or viscous oil. Because these drops float on a cushion of vapor, the resistance to the motion mainly arises from the formation of waves, which mostly occurs on liquids of low viscosity. The wave resistance is very low, of the order of ten micronewtons. However, we could measure it from the slow deceleration of the drops as they move along the surface. We were able to show that this force increases very strongly (in a quasi-discontinuous fashion) when the velocity becomes higher than 23 cm/s, that is, when a stationary wake can exist. We also studied the effect of the bath viscosity, which damps the waves and hence reduces the drag.

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