Abstract Submitted
for the DFD19 Meeting of
The American Physical Society

Superwalking Droplets[1] RAHIL VALANI, School of Physics and Astronomy, Monash University, Victoria 3800, Australia, ANJA SLIM, School of Mathematics and School of Earth, Atmosphere and Environment, Monash University, Victoria 3800, Australia, TAPIO SIMULA, Centre for Quantum and Optical Science, Swinburne University of Technology, Melbourne 3122, Australia — A *walker* is a droplet of liquid that can self-propel on the free surface of a vibrating bath of the same liquid through feedback between the droplet and its wave field. We have studied walking droplets in the presence of two driving frequencies and have observed a new class of walking droplets, which we coin *superwalkers*. Superwalkers may be more than double the size of the largest walkers, may travel at more than triple the speed of the fastest ones, and enable a plethora of novel multi-droplet behaviors. Physical insights from numerical simulations into the emergence of the superwalking behavior are also discussed.

[1]Australian Government RTP Scholarship to R.V., ARC Future Fellowship Project No. FT180100020 (T.S.)

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Date submitted: 08 Jul 2019 Electronic form version 1.4