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Large-scale fluid circulation induced by asymmetric surface under vertical vibration[1] YI-CHENG HUANG, Tongji University, JUN ZHANG, New York University and NYU Shanghai, JIN-QIANG ZHONG, Tongji University — A thick layer of fluid, water, contained in a rectangular box of a few centimeters in each direction, is deformed asymmetrically on its free surface by the imposed boundary wettability. As the fluid layer is subject to harmonic excitation at a level below the threshold of Faraday instability, an unidirectional, large-scale circulation emerges in the fluid bulk. We experimentally study its pattern, timescale needed to evolve and the underlying mechanisms.

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