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Experimental Mechanical Stochastic Resonance JILLIAN RIX, BARBARA BREEN, Grinnell College, JOHN LINDNER, The College of Wooster — Wind is free and ubiquitous and can be harnessed in multiple ways. We demonstrate stochastic resonance in a tabletop experiment that harvests wind energy to amplify weak periodic signals detected via the movement of an inverted pendulum. Unlike earlier mechanical stochastic resonance experiments, where noise was added via electrically driven vibrations, our broad-spectrum noise source is a single flapping flag. The regime of the experiment is readily accessible, with wind speeds on the order of 20 m/s and signal frequencies on the order of 1 Hz. We readily obtain signal-to-noise ratios on the order of 10 dB.

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