

Abstract Submitted
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Computational Mechanical Stochastic Resonance YUE YU, BARBARA BREEN, Grinnell College, JOHN LINDNER, The College of Wooster — We computer model a table-top mechanical stochastic resonance experiment consisting of a bistable inverted pendulum, a weak periodic signal, and a flapping flag as a source of broadband noise. We identify regions of a dimensionless parameter space where applied torques create a bistable Duffing potential and allow us to independently shape the width and height of the potential barrier. The full simulation adds noise, establishes the viability of the experiment, and guides the construction of the apparatus, including the design and 3D printing of individual parts.

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