

Abstract Submitted
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Jarzynski equality for non-Hamiltonian dynamics¹ DIBYENDU MANDAL, Department of Physics, University of California Berkeley, MICHAEL R. DEWEESE, Department of Physics, Redwood Center for Theoretical Neuroscience, and Helen Wills Neuroscience Institute, University of California Berkeley — Recent years have witnessed major advances in our understanding of nonequilibrium processes. The Jarzynski equality, for example, provides a link between equilibrium free energy differences and finite-time, nonequilibrium dynamics. We propose a generalization of this relation to non-Hamiltonian dynamics, relevant for active matter systems, continuous feedback, and computer simulation. Surprisingly, this relation allows us to calculate the free energy difference between the desired initial and final states using arbitrary dynamics. As a practical matter, this dissociation between the dynamics and the initial and final states promises to facilitate a range of techniques for free energy estimation in a single, universal expression.

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