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Thermodynamic metric of nonequilibrium steady states DIBYENDU MANDAL, Helen Wills Neuroscience Institute, University of California, Berkeley, CHRISTOPHER JARZYNSKI, Department of Chemistry and Biochemistry, and Institute for Physical Science and Technology, University of Maryland, College Park — Within the linear response regime, minimally dissipative transitions between equilibrium states are given by the geodesics of a thermodynamic metric in parameter space. We derive an analogous geometric structure for transitions between nonequilibrium steady states, after a suitable renormalization of heat. With a novel expansion formula for the governing master equation, we propose an exact expression for the metric. As in the equilibrium scenario, the components of the metric are given by the time-integrals of correlation functions in nonequilibrium steady states.

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