Optimal Resonance Forcing of Nonlinear Systems

GLENN FOSTER, ALFRED HUBLER, Center for Complex Systems Research, Department of Physics, University of Illinois at Urbana-Champaign — We study the response of dynamical systems to additive forcing and find that, for a broad class of systems, the response is maximized by a pattern of forcing that mimics the time-reversed dynamics of the unforced system. Applying these results, we numerically construct families of optimal inputs and successfully perform spectroscopic system identification on our modeled systems.