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**Anne J Catlla\*** (catllaaj@wofford.edu), 429 N Church St., Spartanburg, SC 29303, and **Chad M Topaz**. *Forced patterns near a Turing-Hopf bifurcation.*

We study the effect of external forcing on Turing patterns in generic two-component reaction-diffusion systems. Such patterns appear in a variety of biological systems but have been explored in greatest detail in chemical reactions. Experiments on the CDIMA chemical reaction have shown that external periodic forcing can suppress Turing patterns [Horvath, Dolnik, et al., PRL, 1999]. Using symmetry and perturbation analyses of reaction-diffusion systems near a Turing-Hopf bifurcation, we determine conditions under which forcing suppresses or enhances patterns and predict how this effect scales with forcing amplitude and frequency. We discuss these results in relation to the aforementioned chemical experiments, simulations of the Lengyel-Epstein and Brusselator models, and biological systems. (Received February 15, 2010)