

Abstract Submitted  
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**4:1 Resonance phenomena in the forced Belousov-Zhabotinsky chemical reaction** BRADLEY MARTS, Duke University Physics, ANNA LIN, Duke University Physics and Center for Nonlinear and Complex Systems — The oscillatory Belousov-Zhabotinsky (BZ) reaction has been successfully used to study generic aspects of resonance in spatially extended systems parametrically forced with pulses of light. Experiments have reproduced Arnol'd tongues and pattern forming behavior predicted by reaction diffusion models and amplitude equations. We use the BZ reaction to experimentally demonstrate a transition in the 4:1 resonance regime from patterns of  $\pi/2$  fronts to patterns of  $\pi$  fronts. The transition matches the theoretical predictions. Above a certain driving strength, traveling  $\pi/2$  fronts become unstable and a new stable pattern of stationary  $\pi$  fronts emerges.

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